

VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Major, Municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260. The proposed discharge will result from the operation of a municipal sewage treatment plant (SIC Code: 4952 - Sewerage Systems). This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address:
Woodstock STP
135 North Main Street
Woodstock, VA 22664
Location: 943 Mill Road, Woodstock
2. Permit No. VA0026468; Expiration Date: February 29, 2016
3. Owner: Town of Woodstock
Contact Name: Reid A. Wodicka
Title: Town Manager
Telephone No: (540) 459-3621
Email: reid.wodicka@townofwoodstock.gov
4. Description of Treatment Works Treating Domestic Sewage:
Total Number of Outfalls: 1

Woodstock STP receives sewage wastewater generated by residents and businesses in the Town of Woodstock. The treatment units comprising the STP are shown in the schematics included in the permit reissuance application.

Average Discharge Flow (September 2010 – September 2015) = 0.55 MGD
Design Average Flow = 2.0 MGD

5. Application Complete Date: September 24, 2015

Permit Writer: Jason R. Dameron

Date: December 17, 2015

Reviewed By: Dawn Jeffries

Date: December 21, 2015

Public Comment Period: January 8, 2016 to February 7, 2016

6. Receiving Stream Name: North Fork Shenandoah River
River Mile: 45.6
Use Impairment: No
Special Standards: pH
Tidal Waters: No
Watershed Name: VAV – B50R North Fork Shenandoah River/Narrow Passage Creek
Basin: Potomac; Subbasin: Shenandoah
Section: 6; Class: IV
7. Operator License Requirements per 9VAC25-31-200.C: Class II
8. Reliability Class per 9VAC25-790: Class II (assigned September 13, 1982)

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9. Permit Characterization:

- ☐ Private ☐ Federal ☐ State ☒ POTW ☐ PVOTW
☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

10. Discharge Location Description and Receiving Waters Information: Appendix A

11. Antidegradation (AD) Review & Comments per 9VAC25-260-30:

Tier Designation: Tier 2

The State Water Control Board's WQS include an AD policy. All state surface waters are provided one of three levels of AD protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 waters have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 waters are exceptional waters and are so designated by regulatory amendment. The AD policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. The North Fork Shenandoah River in the immediate vicinity of the discharge is determined to be a Tier 2 water body because there are no data available to indicate water quality criteria (WQC) are being violated. Since the quality of Tier 2 waters is better than that required by the standards, no significant degradation of the existing quality will be allowed.

The DO AD baseline previously established as 7.3 mg/L has been carried forward from the previous fact sheet. Antidegradation baselines have been calculated for the North Fork Shenandoah River as shown in Appendix B.

12. Site Inspection: Performed by Jason Dameron on November 12, 2015

13. Effluent Screening and Effluent Limitations: Appendix B

14. Effluent toxicity testing requirements included per 9VAC25-31-220.D: ☒ Yes ☐ No Appendix B

15. Sewage sludge utilization and disposal options include the following:

- transport of sewage sludge to Shenandoah County Landfill
- transport of sewage sludge to the Battle Creek Landfill

The VPDES Permit application serves as the Sludge Management Plan to be approved with the reissuance of the permit.

16. Bases for Special Conditions: Appendix C

17. Material Storage per 9VAC25-31-280.B.2: This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

18. Antibacksliding Review per 9VAC25-31-220.L: This permit complies with the antibacksliding provisions of the VPDES Permit Regulation.

19. Impaired Use Status Evaluation per 9VAC25-31-220.D: The North Fork Shenandoah River in the immediate vicinity of the discharge was previously listed as impaired for Bacteria. A TMDL was approved for the receiving stream in 2006, which included a WLA for Woodstock STP. In 2008 the receiving stream was de-listed; however, the facility is still required to meet the following bacteria WLA included in the approved TMDL:

E. coli: 3.48×10^{12} cfu/yr (based on a design flow of 2.0 MGD and a concentration of 126 cfu/100 mL)

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20. Regulation of Users per 9VAC25-31-280.B.9: N/A – This facility is owned by a municipality.
21. Stormwater Management per 9VAC25-31-120: Application Required? ☒ Yes ☐ No
- The facility is currently covered by the VPDES Storm Water General Permit VAR051629.
22. Compliance Schedule per 9VAC25-31-250: There are no compliance schedules included in the reissued permit.
23. Variances/Alternative Limits or Conditions per 9VAC25-31-280.B, 100.K, and 100.N: None.
24. Financial Assurance Applicability per 9VAC25-650-10: N/A – This facility is owned by a municipality.
25. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☒ No
26. Nutrient Trading Regulation per 9VAC25-820: See Appendix B
General Permit Required: ☒ Yes ☐ No
This facility is required to maintain coverage under the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen (TN) and Total Phosphorus (TP) Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) because it is listed with a WLA in the Registration List in 9 VAC 25-820-70.
27. Nutrient monitoring included per Guidance Memo No. 14-2011: ☐ Yes ☒ No
This facility is a Significant Discharger as defined in the Nutrient Trading Watershed General Permit (WGP) Regulation 9 VAC 25-820 and is actively monitoring and reporting under the WGP. This permit does not include any outfalls that discharge solely stormwater exposed to industrial activity.
28. Threatened and Endangered (T&E) Species Screening per 9VAC25-260-20 B.8: Because this is not an issuance or reissuance that allows increased discharge flows, T&E screening is not automatically required. However, in accordance with the VPDES Memorandum of Understanding, T&E screening was coordinated on January 5, 2016 through DCR and DGIF based upon request. Comments were received from DCR on January 20, 2016 and are included in the permit processing file. Comments were considered in the drafting of the permit and were also forwarded to the permittee. No comments were received from DGIF.
29. Public Notice Information per 9VAC25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Jason Dameron at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7824, jason.dameron@deq.virginia.gov.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

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30. Historical Record:

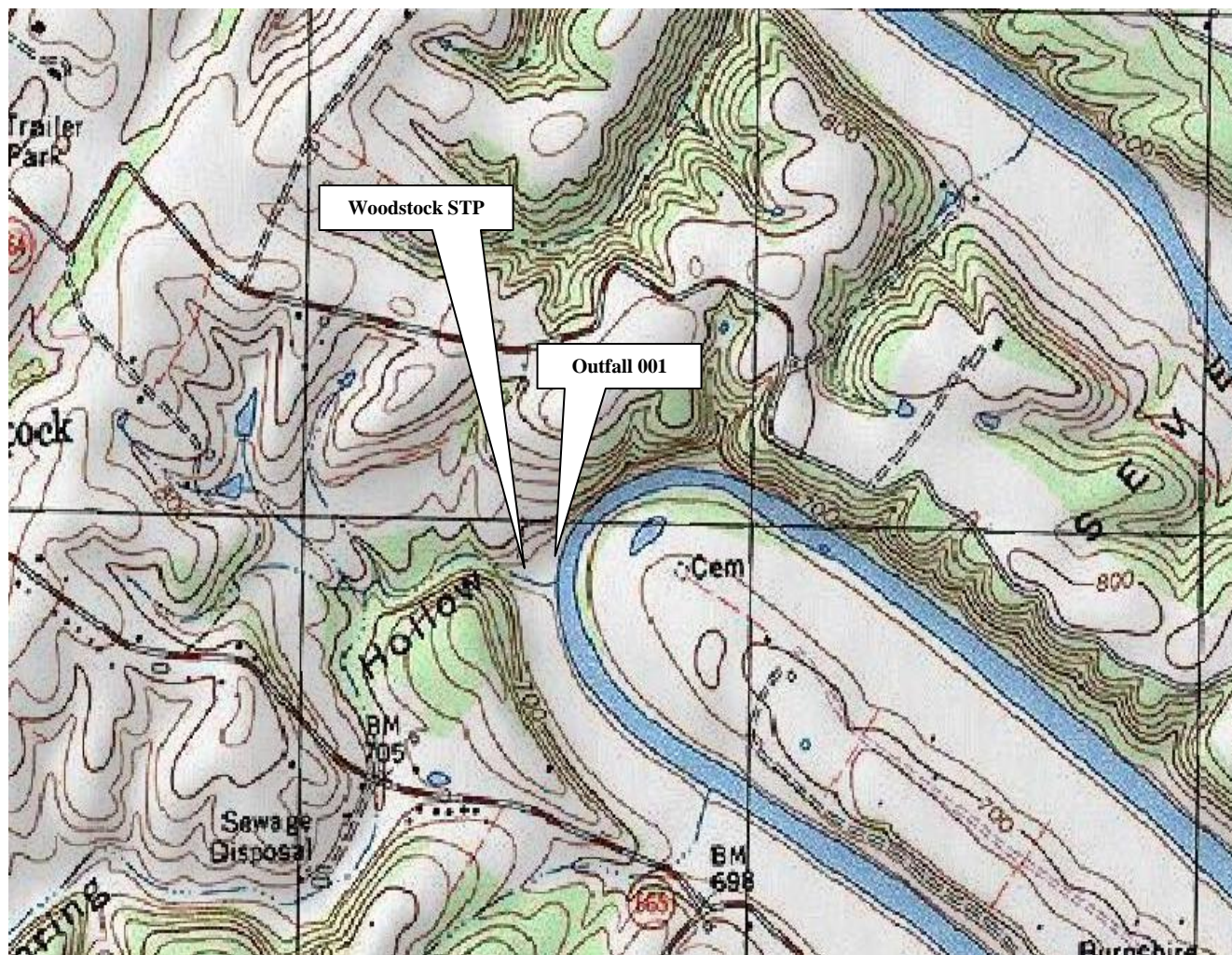
CTO issued for 0.8 MGD facility: November 22, 1988

CTO issued for 2.0 MGD facility: July 1, 2010

APPENDIX A

DISCHARGE LOCATION AND RECEIVING WATERS INFORMATION

Woodstock STP discharges to the North Fork Shenandoah River in Shenandoah County. The topographical map below shows the location of the treatment facility and Outfall 001.



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PLANNING INFORMATION

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the Water Quality Assessments Review table below.

WATER QUALITY ASSESSMENTS REVIEW						
POTOMAC-SHENANDOAH RIVER BASIN						
10/21/2015						
IMPAIRED SEGMENTS						
<u>SEGMENT ID</u>	<u>STREAM</u>	<u>SEGMENT START</u>	<u>SEGMENT END</u>	<u>SEGMENT LENGTH</u>	<u>PARAMETER</u>	
B45R-04-BAC	North Fork Shenandoah River	90.61	56.35	34.26	Fecal Coliform/E-coli	
B49R-01-BAC	Stony Creek	17.04	0.00	17.04	Fecal Coliform	
B49R-01-BEN	Stony Creek	5.76	0.00	5.76	Benthic	
B50R-01-BEN	Toms Brook	7.18	0.00	7.18	Benthic	
B50R-02-BAC	Narrow Passage Creek	10.75	0.00	10.75	Fecal Coliform, E-coli	
B50R-03-BAC	Pugh's Run	5.86	0.00	5.86	Fecal Coliform, E-coli	
B50R-03-BEN	Pugh's Run	5.86	0.00	5.86	Benthic	
B50R-04-BAC	North Fork Shenandoah River	37.27	0.00	24.95	E-coli	
B50R-05-BAC	Spring Hollow	6.36	0.00	6.36	E-coli	
PERMITS						
<u>PERMIT</u>	<u>FACILITY</u>	<u>STREAM</u>	<u>RIVER MILE</u>	<u>LAT</u>	<u>LONG</u>	<u>WBID</u>
VA0026468	Woodstock STP	N.F. Shen River	45.6	385310	0782848	VAV-B50R
VA0020508	Edinburg STP	Stony Creek	0.62	384913	0783329	VAV-B49R
VA0052817	Woodstock WTP	N.F. Shen River	50.01	385145	0783030	VAV-B50R
VA0061549	Toms Brook-Mauretown Sanitary District	Toms Brook	2.17	385634	0782615	VAV-B50R
VA0092550	Dorothy's Inn	NF Shen River	54.94	385037	0783207	VAV-B50R
VA0088846	Valley Wood Products STP	Narrow Passage Creek	0.57	385045	0783215	VAV-B50R
VA0090328	North Fork Regional WWTP	N.F. Shen River	57.65	384935	0783201	VAV-B50R
MONITORING STATIONS						
<u>STREAM</u>	<u>NAME</u>	<u>RIVER MILE</u>	<u>RECORD</u>	<u>LAT</u>	<u>LONG</u>	
Jordan Run	1BJDN000.29	0.29	3/24/2003	385543	0782553	
N.F. Shenandoah River	1BNFS026.98	26.98	3/31/2005	385451	0782435	
N.F. Shenandoah River	1BNFS043.06	43.06	7/1/1999	385239	0782802	
N.F. Shenandoah River	1BNFS046.79	46.79	3/17/2007	385217	0782934	
N.F. Shenandoah River	1BNFS048.74	48.74	3/24/2003	385124	0782901	
N.F. Shenandoah River	1BNFS054.75	54.75	8/10/1988	385041	0783154	
N.F. Shenandoah River	1BNFS059.59	59.59	7/18/1968	384924	0783258	
Narrow Passage Creek	1BNPC000.02	0.02	7/1/1991	385046	0783146	
Passage Creek	1BPSG018.13	18.13	8/25/2003	385015	0782429	
Pugh's Run	1BPGH000.60	0.6	7/1/1991	385414	0782911	
Spring Hollow	1BXEL000.55	0.55	4/15/2007	385256	0782904	
Stony Creek	1BSTY001.22	1.22	4/26/1973	384915	0783402	
Toms Brook	1BTMB001.87	1.87	6/30/2003	385624	0782602	
Toms Brook	1BTMB002.22	2.22	6/3/1998	385637	0782613	
N.F. Shenandoah River	1BNFS029.69	29.69	Jul-01	385434	0782535	
N.F. Shenandoah River	1BNFS024.21	24.21	4/25/2005	385540	0782351	
Toms Brook	1BTMB000.54	0.54	7/1/1991	385536	0782529	
Toms Brook	1BTMB000.70	0.7	3/24/2003	385544	0782537	
N.F. Shenandoah River	1BNFS054.80	54.75	4/25/1990	385040	0783157	
N.F. Shenandoah River	1BNFS020.11	20.11	6/13/2007	385658	0782321	
Pugh's Run	1BPGH000.29	0.29	4/16/2009	385409	0782904	
PUBLIC WATER SUPPLY INTAKES						
<u>OWNER</u>	<u>STREAM</u>	<u>RIVER MILE</u>				
None						
WATER QUALITY MANAGEMENT PLANNING REGULATION						
Is this discharge addressed in the WQMP regulation? Yes						
If Yes, what effluent limitations or restrictions does the WQMP regulation impose on this discharge?						
<u>PARAMETER</u>	<u>ALLOCATION</u>					
Nutrients under the Watershed General Permit						
WATERSHED NAME						
VAV-B50R North Fork Shenandoah River/Passage Creek						

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FLOW FREQUENCY DETERMINATION

The VDEQ conducted several flow measurements on the N.F. Shenandoah River from 1993 to 1999. The measurements were made just above the Aileen outfall, at a point approximately 1.5 miles downstream of Stony Creek. The measurements were correlated with the same-day daily mean values from the continuous record gage on the N.F. Shenandoah River near Strasburg, VA (#01634000). The correlation was done by plotting the measurements and the daily mean values on a log/log graph, and performing a regression analysis. The measurements correlated well with the N.F. Shenandoah River gage near Strasburg. A best-fit line (and equation) for the data set was established. Due to the high degree of correlation and the fact that four of the instantaneous flow measurements made at Edinburg were greater than the same day daily mean flows recorded at Strasburg, the associated High Flow 30Q10, Harmonic Mean, and Annual Average flow frequencies at the measurement site were found to be greater than those for the Strasburg gage when the required flow frequencies from the reference gage were plugged into the equation of the regression line. The other flow frequencies were only slightly different despite the difference in drainage areas between the sites. This hydrologic condition may be attributed to (1) the geology of the watershed, (2) the relatively small drainage area of the tributary streams, and (3) the presence of water withdrawals along the N.F. Shenandoah River between Edinburg and Strasburg. The previous determination as explained above showed an absence of significant variability between the flow gauge and the measurement site.

Since the Strasburg gage is located in close proximity to the discharge point, the gage flows were applied directly to the discharge point, as in the previous determination. Since the Woodstock STP discharges upstream from the gage, the average discharge for the past 5 years was subtracted from the gage flows. The flow frequencies are presented below:

N.F. Shenandoah River Gage (#01634000) – Woodstock STP average discharge flow: Drainage Area = 770 mi²

1Q30 =	45 cfs	= 29.1 MGD – 0.55 MGD = 28.6 MGD
1Q10 =	55.4 cfs	= 35.8 MGD – 0.55 MGD = 35.3 MGD
7Q10 =	65.1 cfs	= 42.1 MGD – 0.55 MGD = 41.6 MGD
30Q10 =	75.0 cfs	= 48.5 MGD – 0.55 MGD = 48.0 MGD
30Q5 =	86.2 cfs	= 55.7 MGD – 0.55 MGD = 55.2 MGD
High Flow 1Q10 =	98.9 cfs	= 63.9 MGD – 0.55 MGD = 63.4 MGD
High Flow 7Q10 =	112 cfs	= 72.4 MGD – 0.55 MGD = 71.9 MGD
High Flow 30Q10 =	145 cfs	= 93.7 MGD – 0.55 MGD = 93.2 MGD
HarMean =	240 cfs	= 155 MGD – 0.55 MGD = 154 MGD

The high flow months are January through May.

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EFFLUENT/STREAM MIXING EVALUATION

Mixing zone predictions were made with the Virginia DEQ Mixing Zone Analysis Version 2.1 program. The predictions are based on the discharge and receiving stream characteristics, and are presented below.

<p>Effluent Flow = 2 MGD Stream 7Q10 = 41.6 MGD Stream 30Q10 = 48.0 MGD Stream 1Q10 = 35.3 MGD Stream slope = 0.0017 ft/ft Stream width = 150 ft Bottom scale = 3 Channel scale = 1</p> <p>-----</p> <p>Mixing Zone Predictions @ 7Q10 Depth = .8825 ft Length = 23656.96 ft Velocity = .5099 ft/sec Residence Time = .537 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.</p> <p>-----</p> <p>Mixing Zone Predictions @ 30Q10 Depth = .9585 ft Length = 22069.48 ft Velocity = .5383 ft/sec Residence Time = .4745 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.</p> <p>-----</p> <p>Mixing Zone Predictions @ 1Q10 Depth = .8033 ft Length = 25603.47 ft Velocity = .4792 ft/sec Residence Time = 14.8417 hours Recommendation: A complete mix assumption is appropriate for this situation providing no more than 6.74% of the 1Q10 is used.</p>	<p>Effluent Flow = 2 MGD Stream 7Q10 = 71.9 MGD Stream 30Q10 = 93.2 MGD Stream 1Q10 = 63.4 MGD Stream slope = 0.0017 ft/ft Stream width = 170 ft Bottom scale = 3 Channel scale = 1</p> <p>-----</p> <p>Mixing Zone Predictions @ 7Q10 Depth = 1.1242 ft Length = 24811.07 ft Velocity = .5986 ft/sec Residence Time = .4798 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.</p> <p>-----</p> <p>Mixing Zone Predictions @ 30Q10 Depth = 1.3098 ft Length = 21812.96 ft Velocity = .6618 ft/sec Residence Time = .3815 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.</p> <p>-----</p> <p>Mixing Zone Predictions @ 1Q10 Depth = 1.0444 ft Length = 26398.62 ft Velocity = .5702 ft/sec Residence Time = 12.8597 hours Recommendation: A complete mix assumption is appropriate for this situation providing no more than 7.78% of the 1Q10 is used.</p>
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APPENDIX B

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS

A comparison of technology and water quality-based limits was performed and the most stringent limits were selected, as summarized in the table below.

Outfall 001

Final Limits

Design Flow: 2.0 MGD

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		Continuous	TIRE
-----	-----	Monthly Average		Weekly Average		-----	-----
CBOD ₅	3,4	20 mg/L	150 kg/d	30 mg/L	230 kg/d	2/Month	24 HC
TKN (as N)	3,4	4.0 mg/L	30 kg/d	6.0 mg/L	45 kg/d	1/Week	24 HC
TSS	2	30 mg/L	230 kg/d	45 mg/L	340 kg/d	1/Month	24 HC
Effluent Chlorine (TRC)(mg/L)*	3	0.019		0.021		4/Day @ 4-Hr intervals	Grab
E. coli (N/100 mL) (geometric mean)	3,6	126		NA		4/Month in any month of each calendar quarter* or 4/Month** 10 am to 4 pm	Grab
-----	-----	Annual Average		Maximum		-----	-----
TP – Year to Date (mg/L)	8	NL		NA		1/Month	Calculated
TP – Calendar Year (mg/L)	5,8,9	0.3		NA		1/Year	Calculated
TN – Year to Date (mg/L)	8	NL		NA		1/Month	Calculated
TN – Calendar Year (mg/L)	5,8,9	4.0		NA		1/Year	Calculated
-----	-----	Minimum		Maximum		-----	-----
pH (S.U.)	3	6.5		9.5		1/Day	Grab
Dissolved Oxygen (mg/L)	3,4	5.0		NA		1/Day	Grab
Contact Chlorine (TRC)(mg/L)*	3,7	1.0		NA		4/Day @ 4-Hr intervals	Grab

Refer to permit for definitions of monitoring frequencies and sample types

* Applicable only when chlorination is used for disinfection

** Applicable if an alternative to chlorination is used for disinfection

BASIS DESCRIPTIONS

1. VPDES Permit Regulation (9VAC25-31)
2. Federal Effluent Requirements (Secondary Treatment Regulation - 40CFR133)
3. Water Quality Standards (9VAC25-260)
4. Regional Stream Model
5. WQMP Regulation (9VAC25-720-50)
6. North Fork Shenandoah River TMDL
7. Best Professional Judgment (BPJ)
8. GM No. 07-2008, Amendment No. 2, 10/23/07, Permitting Considerations for Facilities in the Chesapeake Bay Watershed
9. Annual average concentration limits are based on the Technology Regulation (9VAC25-40)

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LIMITING FACTORS – OVERVIEW:

The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (WQMP) (9VAC25-720)	
A. TMDL limits	E. coli
B. Non-TMDL WLAs	None
C. CBP (TN & TP) WLAs	TN and TP via GP VAN010094
Federal Effluent Guidelines	CBOD₅, TSS, pH
BPJ/Agency Guidance limits	TRC (contact), TKN
Water Quality-based Limits - numeric	CBOD₅, DO, TRC (effluent), E. coli, pH, Ammonia-N
Water Quality-based Limits - narrative	None
Technology-based Limits (9VAC25-40-70)	TN, TP
Whole Effluent Toxicity (WET)	See pages B-16 to B-19
Stormwater Limits	GP VAR051629

EVALUATION OF THE EFFLUENT – CONVENTIONAL POLLUTANTS:

The discharge for this facility was remodeled during the previous permit reissuance due to new stream flow information. Because there have been no significant changes in the treatment facility or the receiving stream characteristics, the previous regional stream model is considered to be representative of current conditions for the discharge and has been carried forward at this reissuance. The regional stream model is maintained in the DEQ-Valley Regional Office and is available for review upon request.

The model demonstrated that the values shown below are protective of downstream WQC requirements.

CBOD₅ = 20 mg/L
TKN = 4.0 mg/L
D.O. = 5 mg/L

As part of a facility upgrade, a membrane bioreactor (MBR) filtration system was installed and began operating on January 8, 2010. Use of the MBR filtration system has resulted in high removal efficiencies for CBOD₅. Based on the CBOD₅ monitoring, the average concentration was 4.96 mg/L. The effluent data are consistently less than 25% of the monthly average limit of 20 mg/L. Based on the system design and past performance, the reduced CBOD₅ monitoring frequency of 2/Month has been carried forward from the previous permit.

TKN limits were previously determined to be necessary to maintain the DO baseline. The facility is also required to meet an annual average TN concentration limit of 4.0 mg/L. Because the facility has been upgraded to include enhanced nutrient removal technology, the monitoring frequency for TKN has been reduced from 5 Days/Week to 1/Week which matches the monitoring frequency required in the Nutrient General Permit.

The DO limits have been carried forward from the previous permit.

The TSS limits are consistent with the Secondary Treatment Regulation and have been carried forward from the previous permit.

The pH limits reflect the current WQS for pH in the receiving stream and have been carried forward from the previous permit.

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EVALUATION OF THE EFFLUENT – DISINFECTION:

The E. coli limits have been carried forward from the previous permit. The E. coli limits are consistent with the TMDL WLA of 3.48×10^{12} cfu/yr and are protective of the current WQS for E. coli in the receiving stream. Based on the system design and past performance as well, the fact that the UV system includes alarms on the transmissivity and intensity meters for the UV lights, the reduced E. coli monitoring frequency has also been carried forward and is expressed as 4/Month instead of 1/Week. Chlorine limits are also specified in the permit, but are only applicable should the facility need to utilize chlorine disinfection. In addition to the minimum TRC contact requirements, E. coli monitoring at a frequency of 4/Month sampling during at least 1 month in each calendar quarter of the permit term has been imposed to demonstrate compliance with the monthly geometric mean limit and to ensure adequate disinfection. This additional E. coli monitoring has been imposed in accordance with Guidance Memo No. 14-2003.

EVALUATION OF THE EFFLUENT – NUTRIENTS:

In accordance with § 62.1-44.19:14.C.5. of the Code of Virginia, this Significant Discharger has submitted a Registration Statement and DEQ has recognized that they are covered under the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for TN and TP Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) (GP). The load limit for TN is 24,364 pounds per calendar year and TP is 1,827 pounds per calendar year.

The Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed (9VAC25-40-70) stipulates the inclusion of technology-based effluent concentration limits in the individual permit for any facility that has installed technology for the control of nitrogen and phosphorous whether by new construction, expansion, or upgrade. Technology based annual average effluent concentration limits of TN = 4.0 mg/L and TP = 0.3 mg/L have been required for this facility. At these annual average concentrations and design flows, the load limits will be met without the need to offset any nutrient loads.

EVALUATION OF THE EFFLUENT – TOXICS:

Stream: Water quality data for the receiving stream were obtained from Ambient Monitoring Station No. 1BNFS054.75 on the North Fork Shenandoah River located at the DGIF Boat Launch.

Stream Information			
90% Annual Temp (°C) =	23.8	90% pH (SU) =	8.7
90% Wet Temp (°C) =	18.0	10% pH (SU) =	7.6
Mean Hardness (mg/L) =	169		

All toxic pollutants, including Ammonia-N and TRC, are assumed absent in the receiving stream because there are no data for these parameters directly above the discharge.

Discharge: The pH, temperature, and hardness values were obtained from data submitted by the permittee.

Effluent Information			
90% Annual Temp (°C) =	23.8	90% pH (SU) =	7.7
90% Wet Temp (°C) =	19.2	10% pH (SU) =	7.3
Mean Hardness (mg/L) =	271		

WQC and WLAs were calculated for the WQS parameters for which data are available. The resulting WQC and WLAs are presented in this appendix. Current agency guidelines recommends the evaluation of toxic pollutant limits for TRC and Ammonia-N be based on default effluent concentrations of 20 mg/L and 9 mg/L, respectively. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

- TRC: Limits identical to the previous permit were determined to be necessary at this reissuance.

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- Ammonia-N: Ammonia-N limits were determined to be necessary at this reissuance; however, because both the chronic and acute WLAs for Ammonia-N were greater than the monthly average TKN limit, the TKN limits will control Ammonia-N. No Ammonia-N limits have been included in the permit at this reissuance.
- A WQS toxics scan has been required for several parameters. This monitoring must be performed within 1 year of the effective date of the permit and must be reported using Attachment A.

WQC-WLA SPREADSHEET INPUT

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name:

Woodstock STP

Receiving Stream:

North Fork Shenandoah River

Permit No.: VA0026468

Date: 12/28/2015

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO₃) = 169 mg/L

90% Temperature (Annual) = 23.8 deg C

90% Temperature (Wet season) = 18 deg C

90% Maximum pH = 8.7 SU

10% Maximum pH = 7.6 SU

Tier Designation = 2

Public Water Supply (PWS) Y/N? = N

V(alley) or P(iedmont)? = V

Trout Present Y/N? = N

Early Life Stages Present Y/N? = Y

Stream Flows

1Q10 (Annual) = 35.3 MGD

7Q10 (Annual) = 41.6 MGD

30Q10 (Annual) = 48 MGD

1Q10 (Wet season) = 63.4 MGD

30Q10 (Wet season) = 93.2 MGD

30Q5 = 55.2 MGD

Harmonic Mean = 154 MGD

Mixing Information

Annual - 1Q10 Flow = 6.74 %

- 7Q10 Flow = 100 %

- 30Q10 Flow = 100 %

Wet Season - 1Q10 Flow = 7.78 %

- 30Q10 Flow = 100 %

Effluent Information

Mean Hardness (as CaCO₃) = 271 mg/L

90% Temp (Annual) = 23.8 deg C

90% Temp (Wet season) = 19.2 deg C

90% Maximum pH = 7.7 SU

10% Maximum pH = 7.3 SU

1992 Discharge Flow = 0.8 MGD

Discharge Flow for Limit Analysis = 2.0 MGD

Footnotes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.

2. All flow values are expressed as Million Gallons per Day (MGD).

3. Discharge volumes are highest monthly average or 2C maximum for industries and design flows for Municipals.

4. Hardness expressed as mg/l CaCO₃. Standards calculated using Hardness values in the range of 25-400 mg/l CaCO₃.

5. "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.

6. Carcinogen "Y" indicates carcinogenic parameter.

7. Ammonia WQSs selected from separate tables, based on pH and temperature.

8. Metals measured as Dissolved, unless specified otherwise.

9. WLA = Waste Load Allocation (based on standards).

10. WLA = Waste Load Allocation (based on standards).

11. WLAs are based on mass balances (less background, if data exist).

12. Acute - 1 hour avg. concentration not to be exceeded more than 1/3 years.

13. Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/3 years.

14. Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens,

and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.

15. Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

Fact Sheet – VPDES Permit No. VA0026468 – Woodstock STP

WQC-WLA SPREADSHEET OUTPUT

Facility Name:		Permit No.:		Receiving Stream:		Date:		79th Percentiles of		Expected Value		Current Downstream		PRE - EXPANSION		WATER QUALITY CRITERIA		0.800 MGD Discharge Flow - 100% Stream Mix		Human Health		INSTREAM BASELINES	
Woodstock STP		VA0026468		North Fork Shenandoah River		12/22/2015		Effluent Concentrations		of Upstream Data		Mix Concentrations		Aquatic Protection		Public Water		Other Surface		Supplies		Waters	
Toxic Parameter and Form		Carcinogen?		Daily		4-Day		30-Day		Acute		Chronic		H-Health		Acute		Chronic		H-Health		Acute	
Acenaphthene		N		0		0		0		0		0		0		None		None		6.7E+02		9.9E+01	
Acrolein		N		0		0		0		0		0		0		None		None		6.1E+00		9.3E+00	
Acrylonitrile		Y		0		0		0		0		0		0		None		None		5.1E-01		2.5E+00	
Aldrin		Y		0		0		0		0		0		0		3.0E+00		None		4.9E-04		5.0E-04	
Ammonia-N (Annual)		N		21.90		0.00		10.85		0		0.4853		0.1779		2.5E+00 mg/L		4.7E-01 mg/L		None		1.0E+00 mg/L	
Anthracene		N		0		0		0		0		0		0		None		None		8.3E+03		4.0E+04	
Antimony		N		0		0		0		0		0		0		None		None		5.6E+00		6.4E+02	
Arsenic		N		0		0		0		0		0		0		3.4E+02		1.5E+02		1.0E+01		None	
Barium		N		0		0		0		0		0		0		None		None		2.0E+03		None	
Benzene		Y		0		0		0		0		0		0		None		None		2.2E+01		5.1E+02	
Benzidine		Y		0		0		0		0		0		0		None		None		8.6E-04		2.0E-03	
Benzo(a)anthracene		Y		0		0		0		0		0		0		None		None		3.8E-02		1.8E-01	
Benzo(a)pyrene		Y		0		0		0		0		0		0		None		None		3.8E-02		1.8E-01	
Benzo(b)fluoranthene		Y		0		0		0		0		0		0		None		None		3.8E-02		1.8E-01	
Benzo(k)fluoranthene		Y		0		0		0		0		0		0		None		None		3.8E-02		1.8E-01	
Bis(2-Chloroethyl) Ether		Y		0		0		0		0		0		0		None		None		3.0E-01		5.3E+00	
Bis(2-Chloroisopropyl) Ether		N		0		0		0		0		0		0		None		None		1.4E+03		6.5E+04	
Bis(2-Ethylhexyl) Phthalate		Y		0		0		0		0		0		0		None		None		1.2E+01		2.2E+01	
Bromofom		Y		0		0		0		0		0		0		None		None		4.3E+01		1.4E+03	
Butyl Benzyl Phthalate		N		0		0		0		0		0		0		None		None		1.5E+03		1.9E+03	
Cadmium		N		0		0		0		0		0		0		7.2E+00		1.7E+00		5.0E+00		None	
Carbon Tetrachloride		Y		0		0		0		0		0		0		None		None		2.3E+00		1.6E+01	
Chlordane		Y		0		0		0		0		0		0		2.4E+00		4.3E-03		8.0E-03		8.1E-03	
Chloride		N		0		0		0		0		0		0		8.6E+02 mg/L		2.3E+02 mg/L		2.5E+02 mg/L		None	
Chlorine, Total Residual		N		0.0000		0.0000		0.0000		0.0000		0.0000		0.0000		1.9E-02 mg/L		1.1E-02 mg/L		None		None	
Chlorobenzene		N		0		0		0		0		0		0		None		None		1.3E+02		1.6E+03	
Chlorodibromomethane		Y		0		0		0		0		0		0		None		None		4.0E+00		1.3E+02	
Chloroform		N		0		0		0		0		0		0		None		None		3.4E+02		1.1E+04	

Facility Name:		POST - EXPANSION										Target		MOST RESTRICTIVE			
Woodstock STP		ANTIDegradation			WATER QUALITY CRITERIA				NON-ANTIDegradation			WASTE LOAD ALLOCATIONS			WASTE LOAD ALLOCATIONS		
Receiving Stream:		2,000 MGD Discharge - 100%Stream/Mix			2,000 MGD Discharge Flow - Mix per "Mixer"				2,000 MGD Discharge - Mix per "Mixer"			2,000 MGD Discharge Flow					
North Fork Shenandoah River		Aquatic Protection		Human Health	Aquatic Protection		Public Water	Other Surface	Aquatic Protection		Human Health	Target Level	Aquatic Protection		Human Health	Target Level	
Toxic Parameter and Form	Acute	Chronic	Health	Acute	Chronic	Supplies	Waters		Acute	Chronic	Health		Acute	Chronic	Health		
Acenaphthene	N/A	N/A	2.8E+03	None	None	6.7E+02	9.9E+02		N/A	N/A	2.8E+04	N/A	N/A	N/A	2.8E+03	N/A	
Acrolein	N/A	N/A	2.7E+01	None	None	6.1E+00	9.3E+00		N/A	N/A	2.7E+02	N/A	N/A	N/A	2.7E+01	N/A	
Acrylonitrile	N/A	N/A	2.0E+01	None	None	5.1E-01	2.5E+00		N/A	N/A	2.0E+02	N/A	N/A	N/A	2.0E+01	N/A	
Aldrin	1.4E+01	N/A	3.9E-03	3.0E+00	None	4.9E-04	5.0E-04		6.6E+00	N/A	3.9E-02	N/A	6.6E+00	N/A	3.9E-03	N/A	
Ammonia-N (Annual)	1.9E+01 mg/L	6.3E+00 mg/L	N/A	8.5E+00 mg/L	5.4E-01 mg/L	None	None		1.9E+01 mg/L	1.3E+01 mg/L	N/A	N/A	1.9E+01 mg/L	6.3E+00 mg/L	N/A	N/A	
Anthracene	N/A	N/A	1.1E+05	None	None	8.3E+03	4.0E+04		N/A	N/A	1.1E+06	N/A	N/A	N/A	1.1E+05	N/A	
Antimony	N/A	N/A	1.8E+03	None	None	5.6E+00	6.4E+02		N/A	N/A	1.8E+04	1.8E+04	N/A	N/A	1.8E+03	1.8E+03	
Arsenic	1.6E+03	8.2E+02	N/A	3.4E+02	1.5E+02	1.0E+01	None		7.4E+02	3.3E+03	N/A	3.0E+02	7.4E+02	8.2E+02	N/A	3.0E+02	
Barium	N/A	N/A	N/A	None	None	2.0E+03	None		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzene	N/A	N/A	4.0E+03	None	None	2.2E+01	5.1E+02		N/A	N/A	4.0E+04	N/A	N/A	N/A	4.0E+03	N/A	
Benzidine	N/A	N/A	1.6E-02	None	None	8.6E-04	2.0E-03		N/A	N/A	1.6E-01	N/A	N/A	N/A	1.6E-02	N/A	
Benzo(a)anthracene	N/A	N/A	1.4E+00	None	None	3.8E-02	1.8E-01		N/A	N/A	1.4E+01	N/A	N/A	N/A	1.4E+00	N/A	
Benzo(a)pyrene	N/A	N/A	1.4E+00	None	None	3.8E-02	1.8E-01		N/A	N/A	1.4E+01	N/A	N/A	N/A	1.4E+00	N/A	
Benzo(b)fluoranthene	N/A	N/A	1.4E+00	None	None	3.8E-02	1.8E-01		N/A	N/A	1.4E+01	N/A	N/A	N/A	1.4E+00	N/A	
Benzo(k)fluoranthene	N/A	N/A	1.4E+00	None	None	3.8E-02	1.8E-01		N/A	N/A	1.4E+01	N/A	N/A	N/A	1.4E+00	N/A	
Bis(2-Chloroethyl) Ether	N/A	N/A	4.1E+01	None	None	3.0E-01	5.3E+00		N/A	N/A	4.1E+02	N/A	N/A	N/A	4.1E+01	N/A	
Bis(2-Chloroisopropyl) Ether	N/A	N/A	1.9E+05	None	None	1.4E+03	6.5E+04		N/A	N/A	1.9E+06	N/A	N/A	N/A	1.9E+05	N/A	
Bis(2-Ethylhexyl) Phthalate	N/A	N/A	1.7E+02	None	None	1.2E+01	2.2E+01		N/A	N/A	1.7E+03	N/A	N/A	N/A	1.7E+02	N/A	
Bromoform	N/A	N/A	1.1E+04	None	None	4.3E+01	1.4E+03		N/A	N/A	1.1E+05	N/A	N/A	N/A	1.1E+04	N/A	
Butyl Benzyl Phthalate	N/A	N/A	5.4E+03	None	None	1.5E+03	1.9E+03		N/A	N/A	5.4E+04	N/A	N/A	N/A	5.4E+03	N/A	
Cadmium	3.4E+01	9.4E+00	N/A	9.3E+00	1.7E+00	5.0E+00	None		2.0E+01	3.8E+01	N/A	8.2E+00	2.0E+01	9.4E+00	N/A	5.7E+00	
Carbon Tetrachloride	N/A	N/A	1.2E+02	None	None	2.3E+00	1.6E+01		N/A	N/A	1.2E+03	N/A	N/A	N/A	1.2E+02	N/A	
Chlordane	1.1E+01	2.3E-02	6.3E-02	2.4E+00	4.3E-03	8.0E-03	8.1E-03		5.3E+00	9.4E-02	6.3E-01	N/A	5.3E+00	2.3E-02	6.3E-02	N/A	
Chloride	4.0E+03 mg/L	1.3E+03 mg/L	N/A	8.6E+02 mg/L	2.3E+02 mg/L	2.5E+02 mg/L	None		1.9E+03 mg/L	5.0E+03 mg/L	N/A	N/A	1.9E+03 mg/L	1.3E+03 mg/L	N/A	N/A	
Chlorine, Total Residual	8.9E-02 mg/L	6.0E-02 mg/L	N/A	1.9E-02 mg/L	1.1E-02 mg/L	None	None		4.2E-02 mg/L	2.4E-01 mg/L	N/A	N/A	4.2E-02 mg/L	6.0E-02 mg/L	N/A	N/A	
Chlorobenzene	N/A	N/A	4.6E+03	None	None	1.3E+02	1.6E+03		N/A	N/A	4.6E+04	N/A	N/A	N/A	4.6E+03	N/A	
Chlorodibromomethane	N/A	N/A	1.0E+03	None	None	4.0E+00	1.3E+02		N/A	N/A	1.0E+04	N/A	N/A	N/A	1.0E+03	N/A	
Chloroform	N/A	N/A	3.1E+04	None	None	3.4E+02	1.1E+04		N/A	N/A	3.1E+05	N/A	N/A	N/A	3.1E+04	N/A	

Fact Sheet – VPDES Permit No. VA0026468 – Woodstock STP

Facility Name: Woodstock STP
 Permit No.: VA0026468
 Receiving Stream: North Fork Shenandoah River
 Date: 12/22/2015

North Fork Shenandoah River		12/22/2015		97th Percentiles of Effluent Concentrations		Expected Value of Upstream Data		Current Downstream Mix Concentrations			Human Health				INSTREAM BASELINES		
Toxic Parameter and Form		Carcinogen?	Daily	4-Day	30-Day	Acute	Chronic	H-Health	Acute	Chronic	Supplies	Other Surface Waters	Acute	Chronic	H-Health		
2-Chloronaphthalene	N	0	0	0	0	0	0	0	None	None	1.0E+03	1.6E+03	None	None	1.6E+02		
2-Chlorophenol	N	0	0	0	0	0	0	0	None	None	8.1E+01	1.5E+02	None	None	1.5E+01		
Chlorpyrifos	N	0	0	0	0	0	0	0	None	None	2.1E+02	None	None	None	None		
Chromium (+3)	N	0	0	0	0	0	0	0	8.9E+02	1.1E+02	None	None	2.2E+02	2.9E+01	None		
Chromium (+6)	N	0	0	0	0	0	0	0	1.6E+01	1.1E+01	None	None	4.0E+00	2.8E+00	None		
Total Chromium	N	0	0	0	0	0	0	0	None	None	1.0E+02	None	None	None	None		
Chrysene	Y	0	0	0	0	0	0	0	None	None	3.8E-03	1.8E-02	None	None	1.8E-03		
Copper	N	0	0	0	0	0	0	0	2.2E+01	1.3E+01	1.3E+03	None	5.5E+00	3.5E+00	None		
Cyanide, Free	N	0	0	0	0	0	0	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	5.5E+00	1.3E+00	1.6E+03		
DDD	Y	0	0	0	0	0	0	0	None	None	3.1E-03	3.1E-03	None	None	3.1E-04		
DDE	Y	0	0	0	0	0	0	0	None	None	2.2E-03	2.2E-03	None	None	2.2E-04		
DDT	Y	0	0	0	0	0	0	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	2.8E-01	2.5E-04	2.2E-04		
Demeton	N	0	0	0	0	0	0	0	None	None	1.0E-01	None	None	2.5E-02	None		
Diazinon	N	0	0	0	0	0	0	0	1.7E-01	1.7E-01	None	None	4.3E-02	4.3E-02	None		
Dibenz(a,h)anthracene	Y	0	0	0	0	0	0	0	None	None	3.8E-02	1.8E-01	None	None	1.8E-02		
1,2-Dichlorobenzene	N	0	0	0	0	0	0	0	None	None	4.2E+02	1.3E+03	None	None	1.3E+02		
1,3-Dichlorobenzene	N	0	0	0	0	0	0	0	None	None	3.2E+02	9.6E+02	None	None	9.6E+01		
1,4-Dichlorobenzene	N	0	0	0	0	0	0	0	None	None	6.3E+01	1.9E+02	None	None	1.9E+01		
3,3-Dichlorobenzidine	Y	0	0	0	0	0	0	0	None	None	2.1E-01	2.8E-01	None	None	2.8E-02		
Dichlorobromomethane	Y	0	0	0	0	0	0	0	None	None	5.5E+00	1.7E+02	None	None	1.7E+01		
1,2-Dichloroethane	Y	0	0	0	0	0	0	0	None	None	3.8E+00	3.7E+02	None	None	3.7E+01		
1,1-Dichloroethylene	N	0	0	0	0	0	0	0	None	None	3.3E+02	7.1E+03	None	None	7.1E+02		
1,2-trans-dichloroethylene	N	0	0	0	0	0	0	0	None	None	1.4E+02	1.0E+04	None	None	1.0E+03		
2,4-Dichlorophenol	N	0	0	0	0	0	0	0	None	None	7.7E+01	2.9E+02	None	None	2.9E+01		
2,4-Dichlorophenoxy Acetic Acid	N	0	0	0	0	0	0	0	None	None	1.0E+02	None	None	None	None		
1,2-Dichloropropane	Y	0	0	0	0	0	0	0	None	None	5.0E+00	1.5E+02	None	None	1.5E+01		
1,3-Dichloropropene	Y	0	0	0	0	0	0	0	None	None	3.4E+00	2.1E+02	None	None	2.1E+01		
Dieldrin	Y	0	0	0	0	0	0	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	6.0E-02	1.4E-02	5.4E-05		
Diethyl Phthalate	N	0	0	0	0	0	0	0	None	None	1.7E+04	4.4E+04	None	None	4.4E+03		
2,4-Dimethylphenol	N	0	0	0	0	0	0	0	None	None	3.8E+02	8.5E+02	None	None	8.5E+01		
Dimethyl Phthalate	N	0	0	0	0	0	0	0	None	None	2.7E+05	1.1E+06	None	None	1.1E+05		
Di-n-Butyl Phthalate	N	0	0	0	0	0	0	0	None	None	2.0E+03	4.5E+03	None	None	4.5E+02		
2,4-Dinitrophenol	N	0	0	0	0	0	0	0	None	None	6.9E+01	5.3E+03	None	None	5.3E+02		
2-Methyl-4,6-Dinitrophenol	N	0	0	0	0	0	0	0	None	None	1.3E+01	2.8E+02	None	None	2.8E+01		
2,4-Dinitrotoluene	Y	0	0	0	0	0	0	0	None	None	1.1E+00	3.4E+01	None	None	3.4E+00		
Dioxin +	Y	0	0	0	0	0	0	0	None	None	5.0E-08	5.1E-08	None	None	5.1E-09		
1,2-Diphenylhydrazine	Y	0	0	0	0	0	0	0	None	None	3.6E-01	2.0E+00	None	None	2.0E-01		
Alpha-Endosulfan	N	0	0	0	0	0	0	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	5.5E-02	1.4E-02	8.9E+00		
Beta-Endosulfan	N	0	0	0	0	0	0	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	5.5E-02	1.4E-02	8.9E+00		
Alpha+Beta-Endosulfan	N	0	0	0	0	0	0	0	2.2E-01	5.6E-02	None	None	5.5E-02	1.4E-02	None		
Endosulfan Sulfate	N	0	0	0	0	0	0	0	None	None	6.2E+01	8.9E+01	None	None	8.9E+00		

Facility Name: Woodstock STP
 Receiving Stream: North Fork Shenandoah River

ANTIDEGRADATION WASTE LOAD ALLOCATIONS

Toxic Parameter and Form	2,000 MGD Discharge - 100% Stream Mix		
	Acute	Chronic	Human Health
2-Chloronaphthalene	N/A	N/A	4.6E+03
2-Chlorophenol	N/A	N/A	4.3E+02
Chlorpyrifos	3.9E-01	2.2E-01	N/A
Chromium (+3)	4.1E+03	6.3E+02	N/A
Chromium (+6)	7.5E+01	6.0E+01	N/A
Total Chromium	N/A	N/A	1.4E-01
Chrysene	N/A	N/A	1.4E-01
Copper	1.0E+02	7.7E+01	N/A
Cyanide, Free	1.0E+02	2.8E+01	4.6E+04
DDD	N/A	N/A	2.4E-02
DDE	N/A	N/A	1.7E-02
DDT	5.1E+00	5.5E-03	1.7E-02
Demeton	N/A	5.5E-01	N/A
Disdron	7.9E-01	9.3E-01	N/A
Dibenz(a,h)anthracene	N/A	N/A	1.4E+00
1,2-Dichlorobenzene	N/A	N/A	3.7E+03
1,3-Dichlorobenzene	N/A	N/A	2.7E+03
1,4-Dichlorobenzene	N/A	N/A	5.4E+02
3,3-Dichlorobenzidine	N/A	N/A	2.2E+00
Dichlorobromomethane	N/A	N/A	1.3E+03
1,2-Dichloroethane	N/A	N/A	2.9E+03
1,1-Dichloroethylene	N/A	N/A	2.0E+04
1,2-trans-dichloroethylene	N/A	N/A	2.9E+04
2,4-Dichlorophenol	N/A	N/A	8.3E+02
2,4-Dichlorophenoxy Acetic Acid	N/A	N/A	N/A
1,2-Dichloropropane	N/A	N/A	1.2E+03
1,3-Dichloropropene	N/A	N/A	1.6E+03
Dieldrin	1.1E+00	3.1E-01	4.2E-03
Diethyl Phthalate	N/A	N/A	1.3E+05
2,4-Dimethylphenol	N/A	N/A	2.4E+03
Dimethyl Phthalate	N/A	N/A	3.1E+06
Di-n-Butyl Phthalate	N/A	N/A	1.3E+04
2,4-Dinitrophenol	N/A	N/A	1.5E+04
2-Methyl-4,6-Dinitrophenol	N/A	N/A	8.0E+02
2,4-Dinitrotoluene	N/A	N/A	2.7E+02
Dioxin +	N/A	N/A	1.5E-07
1,2-Diphenylhydrazine	N/A	N/A	1.6E+01
Alpha-Endosulfan	1.0E+00	3.1E-01	2.5E+02
Beta-Endosulfan	1.0E+00	3.1E-01	2.5E+02
Alpha+Beta-Endosulfan	1.0E+00	3.1E-01	N/A
Endosulfan Sulfate	N/A	N/A	2.5E+02

POST - EXPANSION WATER QUALITY CRITERIA

2,000 MGD Discharge Flow - Mix per "Mixer"			
Aquatic Protection	Acute	Chronic	Human Health
None	None	None	1.0E+03
None	None	None	8.1E+01
8.3E-02	4.1E-02	None	1.5E+02
1.1E+03	1.2E+02	None	None
1.6E+01	1.1E+01	None	2.4E+02
1.0E+02	None	1.0E+02	N/A
4.4E-02	4.9E-01	None	3.8E+01
1.3E+03	1.3E+03	None	6.1E+01
1.4E+02	1.6E+04	None	4.8E+01
3.1E-03	3.1E-03	None	N/A
2.2E-03	2.2E-03	None	1.7E-01
2.2E-03	2.2E-03	None	1.7E-01
1.0E-01	None	None	2.2E+00
1.7E-01	None	None	3.7E+00
3.8E-02	1.8E-01	N/A	N/A
4.2E+02	1.3E+03	N/A	N/A
3.2E+02	9.6E+02	N/A	N/A
6.3E+01	1.9E+02	N/A	N/A
2.1E-01	2.8E-01	N/A	N/A
5.5E+00	1.7E+02	N/A	N/A
3.8E+00	3.7E+02	N/A	N/A
3.3E+02	7.1E+03	N/A	N/A
1.4E+02	1.0E+04	N/A	N/A
7.7E+01	2.9E+02	N/A	N/A
1.3E+02	2.3E+02	N/A	N/A
5.0E+00	1.5E+02	N/A	N/A
3.4E+00	2.1E+02	N/A	N/A
5.6E-02	5.4E-04	N/A	N/A
1.7E+04	4.4E+04	N/A	N/A
3.8E+02	8.5E+02	N/A	N/A
2.7E+05	1.1E+06	N/A	N/A
2.0E+03	4.5E+03	N/A	N/A
6.9E+01	5.3E+03	N/A	N/A
1.3E+02	2.3E+02	N/A	N/A
1.1E+00	3.4E+01	N/A	N/A
5.0E-08	5.1E-08	N/A	N/A
3.6E-01	2.0E+00	N/A	N/A
6.2E+01	8.9E+01	N/A	N/A
6.2E+01	8.9E+01	N/A	N/A
None	None	N/A	N/A
6.2E+01	8.9E+01	N/A	N/A

NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS

2,000 MGD Discharge - Mix per "Mixer"		
Aquatic Protection	Acute	Chronic
N/A	N/A	4.6E+04
N/A	N/A	4.3E+03
N/A	N/A	1.8E-01
2.3E+03	2.5E+03	N/A
3.5E+01	2.4E+02	N/A
N/A	N/A	N/A
N/A	N/A	3.8E+01
6.1E+01	3.1E+02	N/A
1.1E+02	4.6E+05	N/A
2.4E-01	2.4E-01	N/A
N/A	N/A	1.7E-01
2.4E+00	2.2E-02	1.7E-01
2.2E+00	N/A	N/A
3.7E-01	3.7E+00	N/A
N/A	N/A	1.4E+01
N/A	N/A	3.7E+04
N/A	N/A	2.7E+04
N/A	N/A	5.4E+03
N/A	N/A	2.2E+01
N/A	N/A	1.3E+04
N/A	N/A	2.9E+04
N/A	N/A	2.0E+05
N/A	N/A	2.9E+05
N/A	N/A	8.3E+03
N/A	N/A	8.0E+03
N/A	N/A	2.7E+03
N/A	N/A	1.2E+04
N/A	N/A	1.6E+04
1.2E+00	4.2E-02	N/A
N/A	N/A	1.3E+06
N/A	N/A	2.4E+04
N/A	N/A	3.1E+07
N/A	N/A	1.3E+05
N/A	N/A	1.5E+05
N/A	N/A	8.0E+03
N/A	N/A	2.7E+03
N/A	N/A	1.5E-06
N/A	N/A	1.6E+02
4.8E-01	1.2E+00	2.5E+03
4.8E-01	1.2E+00	2.5E+03
4.8E-01	1.2E+00	N/A
N/A	N/A	2.5E+03

MOST RESTRICTIVE WASTE LOAD ALLOCATIONS

2,000 MGD Discharge Flow				
Target Level	Aquatic Protection		Human	Target Level
	Acute	Chronic	Health	
N/A	N/A	N/A	4.6E+03	N/A
N/A	N/A	N/A	4.3E+02	N/A
N/A	1.8E-01	2.2E-01	N/A	N/A
9.4E+02	2.3E+03	6.3E+02	N/A	3.8E+02
1.4E+01	3.5E+01	6.0E+01	N/A	1.4E+01
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	1.4E-01	N/A
2.4E+01	6.1E+01	7.7E+01	N/A	2.4E+01
N/A	4.8E+01	2.8E+01	4.6E+04	N/A
N/A	N/A	N/A	2.4E-02	N/A
N/A	N/A	N/A	1.7E-02	N/A
N/A	2.4E+00	5.5E-03	1.7E-02	N/A
N/A	N/A	5.5E-01	N/A	N/A
N/A	3.7E-01	9.3E-01	N/A	N/A
N/A	N/A	N/A	1.4E+00	N/A
N/A	N/A	N/A	3.7E+03	N/A
N/A	N/A	N/A	2.7E+03	N/A
N/A	N/A	N/A	5.4E+02	N/A
N/A	N/A	N/A	2.2E+00	N/A
N/A	N/A	N/A	1.3E+03	N/A
N/A	N/A	N/A	2.9E+03	N/A
N/A	N/A	N/A	2.0E+04	N/A
N/A	N/A	N/A	2.9E+04	N/A
N/A	N/A	N/A	8.3E+02	N/A
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	1.2E+03	N/A
N/A	N/A	N/A	1.0E+03	N/A
N/A	5.3E-01	3.1E-01	4.2E-03	N/A
N/A	N/A	N/A	1.3E+05	N/A
N/A	N/A	N/A	2.4E+03	N/A
N/A	N/A	N/A	3.1E+06	N/A
N/A	N/A	N/A	1.3E+04	N/A
N/A	N/A	N/A	1.5E+04	N/A
N/A	N/A	N/A	8.0E+02	N/A
N/A	N/A	N/A	2.7E+02	N/A
N/A	N/A	N/A	1.5E+04	N/A
N/A	N/A	N/A	1.6E+01	N/A
N/A	4.8E-01	3.1E-01	2.5E+02	N/A
N/A	4.8E-01	3.1E-01	2.5E+02	N/A
N/A	4.8E-01	3.1E-01	N/A	N/A
N/A	N/A	N/A	2.5E+02	N/A+01

Fact Sheet – VPDES Permit No. VA0026468 – Woodstock STP

Facility Name: Woodstock STP
Receiving Stream: North Fork Shenandoah River

Permit No.: VA0026468
Date: 12/22/2015

North Fork Shenandoah River		12/22/2015		97th Percentiles of Effluent Concentrations		Expected Value of Upstream Data		Current Downstream Mix Concentrations			Human Health						
Toxic Parameter and Form	Carcinogen?	Effluent Concentrations			of Upstream Data	Mix Concentrations			Aquatic Protection		Public Water		Other Surface		INSTREAM BASELINES		
		Daily	4-Day	30-Day		Acute	Chronic	H-Health	Acute	Chronic	Supplies	Waters	Acute	Chronic	H-Health		
Endrin	N	0	0	0	0	0	0	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	2.2E-02	9.0E-03	6.0E-03		
Endrin Aldehyde	N	0	0	0	0	0	0	0	None	None	2.9E-01	3.0E-01	None	None	3.0E-02		
Ethylbenzene	N	0	0	0	0	0	0	0	None	None	5.3E+02	2.1E+03	None	None	2.1E+02		
Fluoranthene	N	0	0	0	0	0	0	0	None	None	1.3E+02	1.4E+02	None	None	1.4E+01		
Fluorene	N	0	0	0	0	0	0	0	None	None	1.1E+03	5.3E+03	None	None	5.3E+02		
Foaming Agents (MBAS)	N	0	0	0	0	0	0	0	None	None	5.0E+02	None	None	None	2.5E+03		
Guthion	N	0	0	0	0	0	0	0	None	1.0E-02	None	None	None	None	2.5E+03		
Heptachlor	Y	0	0	0	0	0	0	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	1.3E-01	9.5E-04	7.9E-05		
Heptachlor Epoxide	Y	0	0	0	0	0	0	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	1.3E-01	9.5E-04	3.9E-05		
Hexachlorobenzene	Y	0	0	0	0	0	0	0	None	None	2.8E-03	2.9E-03	None	None	2.9E-04		
Hexachlorobutadiene	Y	0	0	0	0	0	0	0	None	None	4.4E+00	1.8E+02	None	None	1.8E+01		
Hexachlorocyclohexane Alpha-BHC	Y	0	0	0	0	0	0	0	None	None	2.6E-02	4.9E-02	None	None	4.9E-03		
Hexachlorocyclohexane Beta-BHC	Y	0	0	0	0	0	0	0	None	None	9.1E-02	1.7E-01	None	None	1.7E-02		
Hexachlorocyclohexane Gamma-BHC (Lindane)	Y	0	0	0	0	0	0	0	9.5E-01	None	9.8E-01	1.8E+00	2.4E-01	None	1.8E-01		
Hexachlorocyclopentadiene	N	0	0	0	0	0	0	0	None	None	4.0E+01	1.1E+03	None	None	1.1E+02		
Hexachloroethane	Y	0	0	0	0	0	0	0	None	None	1.4E+01	3.3E+01	None	None	3.3E+00		
Hydrogen Sulfide	N	0	0	0	0	0	0	0	None	2.0E+00	None	None	None	5.0E-01	None		
Indeno(1,2,3-cd)pyrene	Y	0	0	0	0	0	0	0	None	None	3.8E-02	1.8E-01	None	None	1.8E-02		
Iron	N	0	0	0	0	0	0	0	None	None	3.0E+02	None	None	None	None		
Isophorone	Y	0	0	0	0	0	0	0	None	None	3.5E+02	9.6E+03	None	None	9.6E+02		
Kepon	N	0	0	0	0	0	0	0	None	Zero	None	None	None	Zero	None		
Lead	N	0	0	0	0	0	0	0	2.4E+02	2.7E+01	1.5E+01	None	5.9E+01	6.7E+00	None		
Malathion	N	0	0	0	0	0	0	0	None	1.0E-01	None	None	None	2.5E-02	None		
Manganese	N	0	0	0	0	0	0	0	None	None	5.0E+01	None	None	None	None		
Mercury	N	0	0	0	0	0	0	0	1.4E+00	7.7E-01	None	None	3.5E-01	1.9E-01	None		
Methyl Bromide	N	0	0	0	0	0	0	0	None	None	4.7E+01	1.5E+03	None	None	1.5E+02		
Methylene Chloride	Y	0	0	0	0	0	0	0	None	None	4.6E+01	5.9E+03	None	None	5.9E+02		
Methoxychlor	N	0	0	0	0	0	0	0	None	3.0E-02	1.0E+02	None	None	7.5E-03	None		
Mirex	N	0	0	0	0	0	0	0	None	Zero	None	None	None	Zero	None		
Nickel	N	0	0	0	0	0	0	0	2.9E+02	3.2E+01	6.1E+02	4.6E+03	7.2E+01	8.0E+00	4.6E+02		
Nitrate (as N)	N	0	0	0	0	0	0	0	None	None	None	None	1.0E+01 mg/L	None	None		
Nitrobenzene	N	0	0	0	0	0	0	0	None	None	1.7E+01	6.9E+02	None	None	6.9E+01		
N-Nitrosodimethylamine	Y	0	0	0	0	0	0	0	None	None	6.9E-03	3.0E+01	None	None	3.0E+00		
N-Nitrosodiphenylamine	Y	0	0	0	0	0	0	0	None	None	3.3E+01	6.0E+01	None	None	6.0E+00		
N-Nitrosodi-n-propylamine	Y	0	0	0	0	0	0	0	None	None	5.0E-02	5.1E+00	None	None	5.1E-01		
Nonylphenol	N	0	0	0	0	0	0	0	2.8E+01	6.6E+00	None	None	7.0E+00	1.7E+00	None		

Facility Name: Woodstock STP
Receiving Stream: North Fork Shenandoah River

ANTIDEGRADATION WASTE LOAD ALLOCATIONS

Toxic Parameter and Form	2,000 MGD Discharge - 100% Stream Mix		
	Aquatic Protection		Human Health
	Acute	Chronic	Health
Endrin	4.0E-01	2.0E-01	1.7E-01
Endrin Aldehyde	N/A	N/A	8.6E-01
Ethylbenzene	N/A	N/A	6.0E+03
Fluoranthene	N/A	N/A	4.0E+02
Fluorene	N/A	N/A	1.5E+04
Foaming Agents (MBAS)	N/A	N/A	N/A
Guthion	N/A	5.5E-02	N/A
Heptachlor	2.4E+00	2.1E-02	6.2E-03
Heptachlor Epoxide	2.4E+00	2.1E-02	3.0E-03
Hexachlorobenzene	N/A	N/A	2.3E-02
Hexachlorobutadiene	N/A	N/A	1.4E+03
Hexachlorocyclohexane Alpha-BHC	N/A	N/A	3.9E-01
Hexachlorocyclohexane Beta-BHC	N/A	N/A	1.3E+00
Hexachlorocyclohexane Gamma-BHC (Lindane)	4.4E+00	N/A	1.4E+01
Hexachlorocyclopentadiene	N/A	N/A	3.1E+03
Hexachloroethane	N/A	N/A	2.6E+02
Hydrogen Sulfide	N/A	1.1E+01	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	1.4E+00
Iron	N/A	N/A	N/A
Isophorone	N/A	N/A	7.5E+04
Kepon	N/A	Zero	N/A
Lead	1.1E+03	1.5E+02	N/A
Malathion	N/A	5.5E-01	N/A
Manganese	N/A	N/A	N/A
Mercury	6.5E+00	4.2E+00	N/A
Methyl Bromide	N/A	N/A	4.3E+03
Methylene Chloride	N/A	N/A	4.6E+04
Methoxychlor	N/A	1.6E-01	N/A
Mirex	N/A	Zero	N/A
Nickel	1.3E+03	1.7E+02	1.3E+04
Nitrate (as N)	N/A	N/A	N/A
Nitrobenzene	N/A	N/A	2.0E+03
N-Nitrosodimethylamine	N/A	N/A	2.3E+02
N-Nitrosodiphenylamine	N/A	N/A	4.7E+02
N-Nitrosodi-n-propylamine	N/A	N/A	4.0E+01
Nonylphenol	1.3E+02	3.6E+01	N/A

POST - EXPANSION WATER QUALITY CRITERIA

Toxic Parameter and Form	2,000 MGD Discharge - Mix per "Mixer"		
	Aquatic Protection		Human Health
	Acute	Chronic	Health
Endrin	8.6E-02	3.6E-02	5.9E-02
Endrin Aldehyde	None	None	2.9E-01
Ethylbenzene	None	None	5.3E+02
Fluoranthene	None	None	1.3E+02
Fluorene	None	None	1.1E+03
Foaming Agents (MBAS)	None	None	5.0E+02
Guthion	None	1.0E-02	None
Heptachlor	5.2E-01	3.8E-03	7.9E-04
Heptachlor Epoxide	5.2E-01	3.8E-03	3.9E-04
Hexachlorobenzene	None	None	2.8E-03
Hexachlorobutadiene	None	None	4.4E+00
Hexachlorocyclohexane Alpha-BHC	None	None	2.6E-02
Hexachlorocyclohexane Beta-BHC	None	None	9.1E-02
Hexachlorocyclohexane Gamma-BHC (Lindane)	9.5E-01	None	9.8E-01
Hexachlorocyclopentadiene	None	None	4.0E+01
Hexachloroethane	None	None	1.4E+01
Hydrogen Sulfide	None	2.0E+00	None
Indeno(1,2,3-cd)pyrene	None	None	3.8E-02
Iron	None	None	3.0E+02
Isophorone	None	None	3.5E+02
Kepon	None	Zero	None
Lead	3.2E+02	2.7E+01	1.5E+01
Malathion	None	1.0E-01	None
Manganese	None	None	5.0E+01
Mercury	1.4E+00	7.7E-01	None
Methyl Bromide	None	None	4.7E+01
Methylene Chloride	None	None	4.6E+01
Methoxychlor	None	3.0E-02	1.0E+02
Mirex	None	Zero	None
Nickel	3.5E+02	3.2E+01	6.1E+02
Nitrate (as N)	None	None	1.0E+01 mg/L
Nitrobenzene	None	None	1.7E+01
N-Nitrosodimethylamine	None	None	6.9E-03
N-Nitrosodiphenylamine	None	None	3.3E+01
N-Nitrosodi-n-propylamine	None	None	5.0E-02
Nonylphenol	2.8E+01	6.6E+00	None

NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS

Toxic Parameter and Form	2,000 MGD Discharge - Mix per "Mixer"		
	Aquatic Protection		Human Health
	Acute	Chronic	Health
Endrin	1.9E-01	7.8E-01	1.7E+00
Endrin Aldehyde	N/A	N/A	8.6E+00
Ethylbenzene	N/A	N/A	6.0E+04
Fluoranthene	N/A	N/A	4.0E+03
Fluorene	N/A	N/A	1.5E+05
Foaming Agents (MBAS)	N/A	N/A	N/A
Guthion	N/A	2.2E-01	N/A
Heptachlor	1.1E+00	8.3E-02	6.2E-02
Heptachlor Epoxide	1.1E+00	8.3E-02	3.0E-02
Hexachlorobenzene	N/A	N/A	2.3E-01
Hexachlorobutadiene	N/A	N/A	1.4E+04
Hexachlorocyclohexane Alpha-BHC	N/A	N/A	3.8E+00
Hexachlorocyclohexane Beta-BHC	N/A	N/A	1.3E+01
Hexachlorocyclohexane Gamma-BHC (Lindane)	2.1E+00	N/A	1.4E+02
Hexachlorocyclopentadiene	N/A	N/A	3.1E+04
Hexachloroethane	N/A	N/A	2.8E+03
Hydrogen Sulfide	N/A	4.4E+01	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	1.4E+01
Iron	N/A	N/A	N/A
Isophorone	N/A	N/A	7.5E+05
Kepon	N/A	Zero	N/A
Lead	6.9E+02	5.9E+02	N/A
Malathion	N/A	2.2E+00	N/A
Manganese	N/A	N/A	N/A
Mercury	3.1E+00	1.7E+01	N/A
Methyl Bromide	N/A	N/A	4.3E+04
Methylene Chloride	N/A	N/A	4.6E+05
Methoxychlor	N/A	6.5E-01	N/A
Mirex	None	Zero	N/A
Nickel	7.6E+02	7.0E+02	1.3E+05
Nitrate (as N)	N/A	N/A	N/A
Nitrobenzene	N/A	N/A	2.0E+04
N-Nitrosodimethylamine	N/A	N/A	2.3E+03
N-Nitrosodiphenylamine	N/A	N/A	4.7E+03
N-Nitrosodi-n-propylamine	N/A	N/A	4.0E+02
Nonylphenol	6.1E+01	1.4E+02	N/A

MOST RESTRICTIVE WASTE LOAD ALLOCATIONS

Toxic Parameter and Form	2,000 MGD Discharge Flow			Target Level
	Aquatic Protection		Human Health	
	Acute	Chronic	Health	
Endrin	1.9E-01	2.0E-01	1.7E-01	N/A
Endrin Aldehyde	N/A	N/A	8.6E-01	N/A
Ethylbenzene	N/A	N/A	6.0E+03	N/A
Fluoranthene	N/A	N/A	4.0E+02	N/A
Fluorene	N/A	N/A	1.5E+04	N/A
Foaming Agents (MBAS)	N/A	N/A	N/A	N/A
Guthion	N/A	5.5E-02	N/A	N/A
Heptachlor	1.1E+00	2.1E-02	6.2E-03	N/A
Heptachlor Epoxide	1.1E+00	2.1E-02	3.0E-03	N/A
Hexachlorobenzene	N/A	N/A	2.3E-02	N/A
Hexachlorobutadiene	N/A	N/A	1.4E+03	N/A
Hexachlorocyclohexane Alpha-BHC	N/A	N/A	3.8E-01	N/A
Hexachlorocyclohexane Beta-BHC	N/A	N/A	1.3E+00	N/A
Hexachlorocyclohexane Gamma-BHC (Lindane)	2.1E+00	N/A	1.4E+01	N/A
Hexachlorocyclopentadiene	N/A	N/A	3.1E+03	N/A
Hexachloroethane	N/A	N/A	2.8E+02	N/A
Hydrogen Sulfide	N/A	1.1E+01	N/A	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	1.4E+00	N/A
Iron	N/A	N/A	N/A	N/A
Isophorone	N/A	N/A	7.5E+04	N/A
Kepon	N/A	Zero	N/A	N/A
Lead	6.9E+02	1.5E+02	N/A	8.7E+01
Malathion	N/A	5.5E-01	N/A	N/A
Manganese	N/A	N/A	N/A	N/A
Mercury	1.2E+00	4.2E+00	N/A	1.2E+00
Methyl Bromide	N/A	N/A	4.3E+03	N/A
Methylene Chloride	N/A	N/A	4.6E+04	N/A
Methoxychlor	N/A	1.6E-01	N/A	N/A
Mirex	N/A	Zero	N/A	N/A
Nickel	3.1E+02	7.6E+02	1.3E+04	1.0E+02
Nitrate (as N)	N/A	N/A	N/A	N/A
Nitrobenzene	N/A	N/A	2.0E+03	N/A
N-Nitrosodimethylamine	N/A	N/A	2.3E+02	N/A
N-Nitrosodiphenylamine	N/A	N/A	4.7E+02	N/A
N-Nitrosodi-n-propylamine	N/A	N/A	4.0E+01	N/A
Nonylphenol	6.1E+01	3.6E+01	N/A	N/A

Fact Sheet – VPDES Permit No. VA0026468 – Woodstock STP

Facility Name: Woodstock STP
 Permit No.: VA0026468
 Receiving Stream: North Fork Shenandoah River
 Date: 12/22/2015

PRE - EXPANSION WATER QUALITY CRITERIA

0.800 MGD Discharge Flow - 100% Stream Mix

North Fork Shenandoah River		12/22/2015		97th Percentiles of			Current Downstream			Aquatic Protection		Human Health		INSTREAM BASELINES		
Toxic Parameter and Form	Carcinogen?	Effluent Concentrations			Expected Value of Upstream Data	Mix Concentrations			Aquatic Protection		Public Water	Other Surface	Acute	Chronic	H-Health	
		Daily	4-Day	30-Day		Acute	Chronic	H-Health	Acute	Chronic	Supplies	Waters				
Parathion	N	0	0	0	0	0	0	0	6.5E-02	1.3E-02	None	None	1.6E-02	3.3E-03	None	
PCB Total	Y	0	0	0	0	0	0	0	None	1.4E-02	6.4E-04	6.4E-04	None	3.5E-03	6.4E-05	
Pentachlorophenol	Y	0	0	0	0	0	0	0	1.6E+01	1.2E+01	2.7E+00	3.0E+01	4.1E+00	3.1E+00	3.0E+00	
Phenol	N	0	0	0	0	0	0	0	None	None	1.0E+04	8.6E+05	None	None	8.6E+04	
Pyrene	N	0	0	0	0	0	0	0	None	None	8.3E+02	4.0E+03	None	None	4.0E+02	
RadNuc - Beta Part & Photon Act	N	0	0	0	0	0	0	0	None	None	4.0E+00 mrem	None	None	None	None	
RadNuc - Gross Alpha Part Act	N	0	0	0	0	0	0	0	None	None	1.5E+01 pCi/L	None	None	None	None	
RadNuc - Radium 226 + 228	N	0	0	0	0	0	0	0	None	None	5.0E+00 pCi/L	None	None	None	None	
RadNuc - Uranium	N	0	0	0	0	0	0	0	None	None	3.0E+01	None	None	None	None	
Selenium, Total Recoverable	N	0	0	0	0	0	0	0	2.0E+01	5.0E+00	1.7E+02	4.2E+03	5.0E+00	1.3E+00	4.2E+02	
Silver	N	0	0	0	0	0	0	0	8.7E+00	None	None	None	2.2E+00	None	None	
Sulfate	N	0	0	0	0	0	0	0	None	None	2.5E+02 mg/L	None	None	None	None	
1,1,2,2-Tetrachloroethane	Y	0	0	0	0	0	0	0	None	None	1.7E+00	4.0E+01	None	None	4.0E+00	
Tetrachloroethylene	Y	0	0	0	0	0	0	0	None	None	6.9E+00	3.3E+01	None	None	3.3E+00	
Thallium	N	0	0	0	0	0	0	0	None	None	2.4E-01	4.7E-01	None	None	4.7E-02	
Toluene	N	0	0	0	0	0	0	0	None	None	5.1E+02	6.0E+03	None	None	6.0E+02	
Total Dissolved Solids	N	0	0	0	0	0	0	0	None	None	5.0E+05	None	None	None	None	
Toxaphene	Y	0	0	0	0	0	0	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	1.8E-01	5.0E-05	2.8E-04	
Tributyltin	N	0	0	0	0	0	0	0	4.6E-01	7.2E-02	None	None	1.2E-01	1.8E-02	None	
1,2,4-Trichlorobenzene	N	0	0	0	0	0	0	0	None	None	3.5E+01	7.0E+01	None	None	7.0E+00	
1,1,2-Trichloroethane	Y	0	0	0	0	0	0	0	None	None	5.9E+00	1.6E+02	None	None	1.6E+01	
Trichloroethylene	Y	0	0	0	0	0	0	0	None	None	2.5E+01	3.0E+02	None	None	3.0E+01	
2,4,6-Trichlorophenol	Y	0	0	0	0	0	0	0	None	None	1.4E+01	2.4E+01	None	None	2.4E+00	
2-(2,4,5-Trichlorophenoxy propionic acid (Silvex)	N	0	0	0	0	0	0	0	None	None	5.0E+01	None	None	None	None	
Vinyl Chloride	Y	0	0	0	0	0	0	0	None	None	2.5E-01	2.4E+01	None	None	2.4E+00	
Zinc	N	0	0	0	0	0	0	0	1.8E+02	1.9E+02	7.4E+03	2.6E+04	4.6E+01	4.7E+01	2.6E+03	

Facility Name: Woodstock STP
 Receiving Stream: North Fork Shenandoah River
**ANTIDEGRADATION
WASTE LOAD ALLOCATIONS**
 2.000 MGD Discharge - 100% Stream Mix

Toxic Parameter and Form	Aquatic Protection		Human Health
	Acute	Chronic	
Parathion	3.0E-01	7.1E-02	N/A
PCB Total	N/A	7.6E-02	5.0E-03
Pentachlorophenol	7.6E+01	6.8E+01	2.3E+02
Phenol	N/A	N/A	2.5E+06
Pyrene	N/A	N/A	1.1E+04
RadNuc - Beta Part & Photon Act	N/A	N/A	N/A
RadNuc - Gross Alpha Part Act	N/A	N/A	N/A
RadNuc - Radium 226 + 228	N/A	N/A	N/A
RadNuc - Uranium	N/A	N/A	N/A
Selenium, Total Recoverable	9.3E+01	2.7E+01	1.2E+04
Silver	4.1E+01	N/A	N/A
Sulfate	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	N/A	N/A	3.1E+02
Tetrachloroethylene	N/A	N/A	2.6E+02
Thallium	N/A	N/A	1.3E+00
Toluene	N/A	N/A	1.7E+04
Total Dissolved Solids	N/A	N/A	N/A
Toxaphene	3.4E+00	1.1E-03	2.2E-02
Tributyltin	2.1E+00	3.9E-01	N/A
1,2,4-Trichlorobenzene	N/A	N/A	2.0E+02
1,1,2-Trichloroethane	N/A	N/A	1.2E+03
Trichloroethylene	N/A	N/A	2.3E+03
2,4,6-Trichlorophenol	N/A	N/A	1.9E+02
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	N/A	N/A	N/A
Vinyl Chloride	N/A	N/A	1.9E+02
Zinc	8.6E+02	1.0E+03	7.4E+04

POST - EXPANSION WATER QUALITY CRITERIA

2.000 MGD Discharge Flow - Mix per "Mixer"

Toxic Parameter and Form	Aquatic Protection		Human Health	
	Acute		Supplies	Waters
	Acute	Chronic	Supplies	Waters
Parathion	6.5E-02	1.3E-02	None	None
PCB Total	None	1.4E-02	6.4E-04	6.4E-04
Pentachlorophenol	1.4E+01	1.2E+01	2.7E+00	3.0E+01
Phenol	None	None	1.0E+04	8.6E+05
Pyrene	None	None	8.3E+02	4.0E+03
RadNuc - Beta Part & Photon Act	None	None	4.0E+00 mrem	4.0E+00 mrem
RadNuc - Gross Alpha Part Act	None	None	1.5E+01 pCi/L	None
RadNuc - Radium 226 + 228	None	None	5.0E+00 pCi/L	None
RadNuc - Uranium	None	None	3.0E+01	None
Selenium, Total Recoverable	2.0E+01	5.0E+00	1.7E+02	4.2E+03
Silver	1.3E+01	None	None	None
Sulfate	None	None	2.5E+02 mg/L	None
1,1,2,2-Tetrachloroethane	None	None	1.7E+00	4.0E+01
Tetrachloroethylene	None	None	6.9E+00	3.3E+01
Thallium	None	None	2.4E-01	4.7E-01
Toluene	None	None	5.1E+02	6.0E+03
Total Dissolved Solids	None	None	5.0E+05	None
Toxaphene	7.3E-01	2.0E-04	2.8E-03	2.8E-03
Tributyltin	4.6E-01	7.2E-02	None	None
1,2,4-Trichlorobenzene	None	None	3.5E+01	7.0E+01
1,1,2-Trichloroethane	None	None	5.9E+00	1.6E+02
Trichloroethylene	None	None	2.5E+01	3.0E+02
2,4,6-Trichlorophenol	None	None	1.4E+01	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	None	None	5.0E+01	None
Vinyl Chloride	None	None	2.5E-01	2.4E+01
Zinc	2.2E+02	1.9E+02	7.4E+03	2.6E+04

NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS

2.000 MGD Discharge - Mix per "Mixer"

Toxic Parameter and Form	Aquatic Protection		Human Health	Target Level
	Acute	Chronic	Health	
Parathion	1.4E-01	2.8E-01	N/A	N/A
PCB Total	N/A	3.1E-01	5.0E-02	N/A
Pentachlorophenol	3.0E+01	2.7E+02	2.3E+03	N/A
Phenol	N/A	N/A	2.5E+07	N/A
Pyrene	N/A	N/A	1.1E+05	N/A
RadNuc - Beta Part & Photon Act	N/A	N/A	1.1E+02 mrem	N/A
RadNuc - Gross Alpha Part Act	N/A	N/A	N/A	N/A
RadNuc - Radium 226 + 228	N/A	N/A	N/A	N/A
RadNuc - Uranium	N/A	N/A	N/A	N/A
Selenium, Total Recoverable	4.4E+01	1.1E+02	1.2E+05	1.8E+01
Silver	2.8E+01	N/A	N/A	1.1E+01
Sulfate	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	N/A	N/A	3.1E+03	N/A
Tetrachloroethylene	0.0E+00	N/A	2.6E+03	N/A
Thallium	N/A	N/A	1.3E+01	N/A
Toluene	N/A	N/A	1.7E+05	N/A
Total Dissolved Solids	N/A	N/A	N/A	N/A
Toxaphene	1.6E+00	4.4E-03	2.2E-01	N/A
Tributyltin	1.0E+00	1.6E+00	N/A	N/A
1,2,4-Trichlorobenzene	N/A	N/A	2.0E+03	N/A
1,1,2-Trichloroethane	N/A	N/A	1.2E+04	N/A
Trichloroethylene	N/A	N/A	2.3E+04	N/A
2,4,6-Trichlorophenol	N/A	N/A	1.9E+03	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	N/A	N/A	N/A	N/A
Vinyl Chloride	N/A	N/A	1.9E+03	N/A
Zinc	4.9E+02	4.1E+03	7.4E+05	2.0E+02

MOST RESTRICTIVE WASTE LOAD ALLOCATIONS

2.000 MGD Discharge Flow

Toxic Parameter and Form	Aquatic Protection		Human Health	Target Level
	Acute	Chronic	Health	
Parathion	1.4E-01	7.1E-02	N/A	N/A
PCB Total	N/A	7.6E-02	5.0E-03	N/A
Pentachlorophenol	3.0E+01	6.8E+01	2.3E+02	N/A
Phenol	N/A	N/A	2.5E+06	N/A
Pyrene	N/A	N/A	1.1E+04	N/A
RadNuc - Beta Part & Photon Act	N/A	N/A	1.1E+02 mrem	N/A
RadNuc - Gross Alpha Part Act	N/A	N/A	N/A	N/A
RadNuc - Radium 226 + 228	N/A	N/A	N/A	N/A
RadNuc - Uranium	N/A	N/A	N/A	N/A
Selenium, Total Recoverable	4.4E+01	2.7E+01	1.2E+04	1.6E+01
Silver	2.8E+01	N/A	N/A	1.1E+01
Sulfate	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	N/A	N/A	3.1E+02	N/A
Tetrachloroethylene	N/A	N/A	2.6E+02	N/A
Thallium	N/A	N/A	1.3E+00	N/A
Toluene	N/A	N/A	1.7E+04	N/A
Total Dissolved Solids	N/A	N/A	N/A	N/A
Toxaphene	1.6E+00	1.1E-03	2.2E-02	N/A
Tributyltin	1.0E+00	3.9E-01	N/A	N/A
1,2,4-Trichlorobenzene	N/A	N/A	2.0E+02	N/A
1,1,2-Trichloroethane	N/A	N/A	1.2E+03	N/A
Trichloroethylene	N/A	N/A	2.3E+03	N/A
2,4,6-Trichlorophenol	N/A	N/A	1.9E+02	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	N/A	N/A	N/A	N/A
Vinyl Chloride	N/A	N/A	1.9E+02	N/A
Zinc	4.9E+02	1.0E+03	7.4E+04	2.0E+02

Fact Sheet – VPDES Permit No. VA0026468 – Woodstock STP

PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011. Acute and Chronic WLAs (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh} , the WLA_{hh} was imposed as the limit.

Since there are no data available for any toxic pollutants immediately upstream of this discharge, all upstream (background) pollutant concentrations are assumed to be "0".

The steps used in evaluating the effluent data are as follows:

- A. If all data are reported as "below detection" or $<$ the required Quantification Level (QL), and at least one detection level is \leq the required QL, then the pollutant is considered to be not significantly present in the discharge and no further monitoring is required.
- B. If all data are reported as "below detection", and all detection levels are $>$ the required QL, then an evaluation is performed in which the pollutant is assumed present at the lowest reported detection level.
 - B.1. If the evaluation indicates that no limits are needed, then the existing data set is adequate and no further monitoring is required.
 - B.2. If the evaluation indicates that limits are needed, then the existing data set is inadequate to make a determination and additional monitoring is required.
- C. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.
 - C.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.
 - C.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.
 - C.3. (Exception for Metals data only) If the evaluation indicates that limits are needed, but the data are reported as a form other than "Dissolved" (except for Selenium), then the existing data set is inadequate to make a determination and additional monitoring is required.

Fact Sheet – VPDES Permit No. VA0026468 – Woodstock STP

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
METALS					
Antimony, dissolved	7440-36-0	0.2	<5	c	B.1
Arsenic, dissolved	7440-38-2	1.0	<10	c	B.1
Barium, dissolved	7440-39-3	---	Applicable to PWS waters only	---	---
Cadmium, dissolved	7440-43-9	0.3	<1	c	B.1
Chromium III, dissolved	16065-83-1	0.5	Previously evaluated. No further monitoring required.		
Chromium VI, dissolved	18540-29-9	0.5	Previously evaluated. No further monitoring required.		
Chromium, Total	7440-47-3	---	Applicable to PWS waters only	---	---
Copper, dissolved	7440-50-8	0.5	6.2, 28, 13	c	C.1
Iron, dissolved	7439-89-6	1.0	Applicable to PWS waters only	---	---
Lead, dissolved	7439-92-1	0.5	<5	c	B.1
Manganese, dissolved	7439-96-5	0.2	Applicable to PWS waters only	---	---
Mercury, dissolved	7439-97-6	1.0	<0.2	c	A
Nickel, dissolved	7440-02-0	0.5	<5	c	B.1
Selenium, total recoverable	7782-49-2	2.0	<10	c	B.1
Silver, dissolved	7440-22-4	0.2	<5	c	B.1
Thallium, dissolved	7440-28-0	---	<10	c	A
Zinc, dissolved	7440-66-6	2.0	35.1	c	C.1
PESTICIDES/PCBS					
Aldrin ^c	309-00-2	0.05	<0.05	b	A
Chlordane ^c	57-74-9	0.2	<0.2	b	A
Chlorpyrifos	2921-88-2	---	<1	b	A
DDD ^c	72-54-8	0.1	<0.05	b	A
DDE ^c	72-55-9	0.1	<0.05	b	A
DDT ^c	50-29-3	0.1	<0.05	b	A
Demeton	8065-48-3	---	<2	b	A
Diazinon	333-41-5	---	<1	b	A
Dieldrin ^c	60-57-1	0.1	<0.05	b	A
Alpha-Endosulfan	959-98-8	0.1	<0.05	b	A
Beta-Endosulfan	33213-65-9	0.1	<0.05	b	A
Alpha-Endosulfan + Beta-Endosulfan		---	<0.05	b	A
Endosulfan Sulfate	1031-07-8	0.1	<0.05	b	A
Endrin	72-20-8	0.1	<0.05	b	A
Endrin Aldehyde	7421-93-4	---	<0.05	b	A
Guthion	86-50-0	---	<1	b	A
Heptachlor ^c	76-44-8	0.05	<0.05	b	A
Heptachlor Epoxide ^c	1024-57-3	---	<0.05	b	A
Hexachlorocyclohexane Alpha-BHC ^c	319-84-6	---	<0.05	b	A
Hexachlorocyclohexane Beta-BHC ^c	319-85-7	---	<0.05	b	A
Hexachlorocyclohexane Gamma-BHC (synonym = Lindane)	58-89-9	---	<0.05	b	A
Kepone	143-50-0	---	<1	b	A
Malathion	121-75-5	---	<1	b	A
Methoxychlor	72-43-5	---	<0.05	b	A
Mirex	2385-85-5	---	<0.05	b	A

Fact Sheet – VPDES Permit No. VA0026468 – Woodstock STP

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Parathion	56-38-2	---	<2	b	A
PCB Total ^C	1336-36-3	7.0	<0.5	b	A
Toxaphene ^C	8001-35-2	5.0	<0.5	b	A
BASE NEUTRAL EXTRACTABLES					
Acenaphthene	83-32-9	10.0	<5	c	A
Anthracene	120-12-7	10.0	<5	c	A
Benzidine ^C	92-87-5	---	<50	c	A
Benzo (a) anthracene ^C	56-55-3	10.0	<5	c	A
Benzo (b) fluoranthene ^C	205-99-2	10.0	Previously evaluated. No further monitoring required.		
Benzo (k) fluoranthene ^C	207-08-9	10.0	<5	c	A
Benzo (a) pyrene ^C	50-32-8	10.0	<5	c	A
Bis 2-Chloroethyl Ether ^C	111-44-4	---	<5	c	A
Bis 2-Chloroisopropyl Ether	108-60-1	---	<5	c	A
Bis-2-Ethylhexyl Phthalate ^C	117-81-7	10.0	<5	c	A
Butyl benzyl phthalate	85-68-7	10.0	<5	c	A
2-Chloronaphthalene	91-58-7	---	<5	c	A
Chrysene ^C	218-01-9	10.0	<5	c	A
Dibenz(a,h)anthracene ^C	53-70-3	20.0	<5	c	A
1,2-Dichlorobenzene	95-50-1	10.0	<5	c	A
1,3-Dichlorobenzene	541-73-1	10.0	<5	c	A
1,4-Dichlorobenzene	106-46-7	10.0	<5	c	A
3,3-Dichlorobenzidine ^C	91-94-1	---	<25	c	A
Diethyl phthalate	84-66-2	10.0	<5	c	A
Dimethyl phthalate	131-11-3	---	<5	c	A
Di-n-Butyl Phthalate	84-74-2	10.0	<5	c	A
2,4-Dinitrotoluene	121-14-2	10.0	<5	c	A
1,2-Diphenylhydrazine ^C	122-66-7	---	<5	c	A
Fluoranthene	206-44-0	10.0	<5	c	A
Fluorene	86-73-7	10.0	<5	c	A
Hexachlorobenzene ^C	118-74-1	---	<5	c	A
Hexachlorobutadiene ^C	87-68-3	---	<5	c	A
Hexachlorocyclopentadiene	77-47-4	---	<10	c	A
Hexachloroethane ^C	67-72-1	---	<5	c	A
Indeno(1,2,3-cd)pyrene ^C	193-39-5	20.0	<5	c	A
Isophorone ^C	78-59-1	10.0	<10	c	A
Nitrobenzene	98-95-3	10.0	<5	c	A
N-Nitrosodimethylamine ^C	62-75-9	---	<5	c	A
N-Nitrosodi-n-propylamine ^C	621-64-7	---	<5	c	A
N-Nitrosodiphenylamine ^C	86-30-6	---	<10	c	A
Pyrene	129-00-0	10.0	<5	c	A
1,2,4-Trichlorobenzene	120-82-1	10.0	<5	c	A
VOLATILES					
Acrolein	107-02-8	---	<5	c	A
Acrylonitrile ^C	107-13-1	---	<50	c	A

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Benzene ^c	71-43-2	10.0	<2	c	A
Bromoform ^c	75-25-2	10.0	<2	c	A
Carbon Tetrachloride ^c	56-23-5	10.0	<2	c	A
Chlorobenzene	108-90-7	50.0	<2	c	A
Chlorodibromomethane ^c	124-48-1	10.0	<2	c	A
Chloroform	67-66-3	10.0	<2	c	A
Dichlorobromomethane ^c	75-27-4	10.0	<2	c	A
1,2-Dichloroethane ^c	107-06-2	10.0	<2	c	A
1,1-Dichloroethylene	75-35-4	10.0	Previously evaluated. No further monitoring required.		
1,2-trans-dichloroethylene	156-60-5	---	<2	c	A
1,2-Dichloropropane ^c	78-87-5	---	<2	c	A
1,3-Dichloropropene ^c	542-75-6	---	Previously evaluated. No further monitoring required.		
Ethylbenzene	100-41-4	10.0	<2	c	A
Methyl Bromide	74-83-9	---	<10, <2	b,c	A
Methylene Chloride ^c	75-09-2	20.0	<2	c	A
1,1,2,2-Tetrachloroethane ^c	79-34-5	---	<2	c	A
Tetrachloroethylene	127-18-4	10.0	Previously evaluated. No further monitoring required.		
Toluene	10-88-3	10.0	<2	c	A
1,1,2-Trichloroethane ^c	79-00-5	---	<2	c	A
Trichloroethylene ^c	79-01-6	10.0	<5, <2	b,c	A
Vinyl Chloride ^c	75-01-4	10.0	<2	c	A
RADIONUCLIDES					
Beta Particle & Photon Activity (mrem/yr)	N/A	---	Applicable to PWS waters only	---	---
Combined Radium 226 and 228 (pCi/L)	N/A	---	Applicable to PWS waters only	---	---
Gross Alpha Particle Activity (pCi/L)	N/A	---	Applicable to PWS waters only	---	---
Uranium	N/A	---	Applicable to PWS waters only	---	---
ACID EXTRACTABLES					
2-Chlorophenol	95-57-8	10.0	<5	c	A
2,4-Dichlorophenol	120-83-2	10.0	<5	c	A
2,4-Dimethylphenol	105-67-9	10.0	<10	c	A
2,4-Dinitrophenol	51-28-5	---	<50	c	A
2-Methyl-4,6-Dinitrophenol	534-52-1	---	Previously evaluated. No further monitoring required.		
Nonylphenol	104-40-51	---	<5	b	A
Pentachlorophenol ^c	87-86-5	50.0	<10	c	A
Phenol	108-95-2	10.0	<5	c	A
2,4,6-Trichlorophenol ^c	88-06-2	10.0	<10	c	A
MISCELLANEOUS					
Ammonia-N (mg/L) (Annual)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	C.2
Chloride (mg/L)	16887-00-6	---	91.4	b	C.1
TRC (mg/L)	7782-50-5	0.1 mg/L	Default = 20 mg/L	a	C.2
Cyanide, Free	57-12-5	10.0	<8.0	c	A
2,4-Dichlorophenoxy acetic acid (synonym = 2,4-D)	94-75-7	---	Applicable to PWS waters only	---	---

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin)(ppq)	1746-01-6	0.01	Applicable to Paper Mills & Oil Refineries only	---	---
Foaming Agents (as MBAS)	N/A	---	Applicable to PWS waters only	---	---
Sulfide, dissolved	18496-25-8	100	NEW REQUIREMENT. Needs to be sampled.		
Hydrogen Sulfide	7783064	---	<0.1	b	A
Nitrate as N (mg/L)	14797-55-8	---	Applicable to PWS waters only	---	---
Sulfate (mg/L)	N/A	---	Applicable to PWS waters only	---	---
Total Dissolved Solids (mg/L)	N/A	---	Applicable to PWS waters only	---	---
Tributyltin	60-10-5	---	No data available. Monitoring required in the permit.		
2-(2,4,5-Trichlorophenoxy) propionic acid (synonym = Silvex)	93-72-1	---	Applicable to PWS waters only	---	---
Hardness (mg/L as CaCO ₃)	471-34-1	---	271	c	---

The superscript "C" following the parameter name indicates that the substance is a known or suspected carcinogen; human health criteria at risk level 10⁻⁵.

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

“Source of Data” codes:

a = default effluent concentration
b = data from permittee monitoring – Attachment A
c = data from permittee monitoring – Reissuance Application

"Data Evaluation" codes:

See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

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STAT.EXE RESULTS:

<p><u>Ammonia-N (Jun-Dec)</u> Chronic averaging period = 30 WLAa = 19 WLAc = 6.3 Q.L. = 0.2 # samples/mo. = 20 # samples/wk. = 5</p> <p>Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Chronic Toxicity Maximum Daily Limit = 12.7113215885228 Average Weekly Limit = 8.28470960032217 Average Monthly Limit = 6.54190413015236</p> <p>The data are: 9</p>	<p><u>TRC</u> Chronic averaging period = 4 WLAa = 0.042 WLAc = 0.06 Q.L. = 0.1 # samples/mo. = 120 # samples/wk. = 30</p> <p>Summary of Statistics: # observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Acute Toxicity Maximum Daily Limit = 0.042 Average Weekly Limit = 2.10699473035653E-02 Average Monthly Limit = 1.90378828394726E-02</p> <p>The data are: 20</p>	<p><u>Chloride</u> Chronic averaging period = 4 WLAa = 1900 WLAc = 1300 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 91.4 Variance = 3007.42 C.V. = 0.6 97th percentile daily values = 222.414 97th percentile 4 day average = 152.070 97th percentile 30 day average= 110.233 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 91.4</p>
<p><u>Arsenic, Dissolved</u> Chronic averaging period = 4 WLAa = 740 WLAc = 820 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 10 Variance = 36 C.V. = 0.6 97th percentile daily values = 24.3341 97th percentile 4 day average = 16.6379 97th percentile 30 day average= 12.0605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 10</p>	<p><u>Cadmium, Dissolved</u> Chronic averaging period = 4 WLAa = 20 WLAc = 9.4 Q.L. = 0.3 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 1 Variance = .36 C.V. = 0.6 97th percentile daily values = 2.43341 97th percentile 4 day average = 1.66379 97th percentile 30 day average= 1.20605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1</p>	<p><u>Copper, Dissolved</u> Chronic averaging period = 4 WLAa = 60 WLAc = 77 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 3 Expected Value = 15.7333 Variance = 89.1136 C.V. = 0.6 97th percentile daily values = 38.2857 97th percentile 4 day average = 26.1769 97th percentile 30 day average= 18.9752 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 6.2, 28, 13</p>
<p><u>Lead, Dissolved</u> Chronic averaging period = 4 WLAa = 680 WLAc = 150 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 5 Variance = 9 C.V. = 0.6 97th percentile daily values = 12.1670 97th percentile 4 day average = 8.31895 97th percentile 30 day average= 6.03026 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 5</p>	<p><u>Nickel, Dissolved</u> Chronic averaging period = 4 WLAa = 760 WLAc = 170 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 5 Variance = 9 C.V. = 0.6 97th percentile daily values = 12.1670 97th percentile 4 day average = 8.31895 97th percentile 30 day average= 6.03026 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 5</p>	<p><u>Selenium, Dissolved</u> Chronic averaging period = 4 WLAa = 44 WLAc = 27 Q.L. = 2 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 10 Variance = 36 C.V. = 0.6 97th percentile daily values = 24.3341 97th percentile 4 day average = 16.6379 97th percentile 30 day average= 12.0605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 10</p>

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<p><u>Silver, Dissolved</u> Chronic averaging period = 4 WLAa = 28 WLAc = Q.L. = 0.2 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 5 Variance = 9 C.V. = 0.6 97th percentile daily values = 12.1670 97th percentile 4 day average = 8.31895 97th percentile 30 day average= 6.03026 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 5</p>	<p><u>Zinc, Dissolved</u> Chronic averaging period = 4 WLAa = 490 WLAc = 1000 Q.L. = 2 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 35.1 Variance = 443.523 C.V. = 0.6 97th percentile daily values = 85.4129 97th percentile 4 day average = 58.3990 97th percentile 30 day average= 42.3324 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 35.1</p>
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WHOLE EFFLUENT TOXICITY (WET) EVALUATION:

Applicability of TMP:

DEQ guidance states that a municipal sewage treatment plant with a design flow greater than or equal to 1.0 MGD will be subject to Toxics Management Program (TMP) requirements (TMP Guidance Memo No. 00-2012, 8/4/2000, Part IV.2.A).

Summary of Toxicity Testing:

The previous permit required acute and chronic testing for *Ceriodaphnia dubia* and *Pimephales promelas* quarterly for a year and annually thereafter. Tables 1, 2, and 3 contain a summary of the toxicity testing results during the term of the permit. These data were evaluated using the procedures outlined in the TMP guidance.

Criteria for Acute Toxicity Testing:

The Acute IWC is greater than 33%. Therefore, the acute toxicity criteria endpoint is NOAEC = 100%.

Sample Type:

A sample type of 24 hour composite is representative of the discharge.

Calculation of Wasteload Allocations (WLAs):

Acute and chronic WLAs were generated from the WETLimit10.xls spreadsheet by entering the design flow, stream flows, and stream mix percentages for the respective stream flows.

Dilution Series:

The chronic dilution series being recommended is contained in Table 4. The standard 0.5 dilution series is recommended for acute testing.

Stat.exe Limit Evaluation:

The chronic WLA is used in the Department's Stat.exe program in order to perform a statistical evaluation of the chronic test results expressed as Toxicity Units (TUs). The chronic toxicity data are analyzed separately by species. The acute WLA is <1 and WET tests can only provide results to a minimum of 1. Therefore the acute results are not evaluated by the Stat.exe program.

Chronic Stat.exe Data Evaluation:

The summary of the chronic toxicity testing data are shown in Tables 2 and 3. The results of the Stat.exe evaluation are shown in Table 5. Based on the evaluation of the chronic toxicity data, a Whole Effluent Toxicity (WET) Limit is not required at this time. Annual monitoring will be continued. A most-sensitive species will not be selected, and both species (*Ceriodaphnia dubia* and *Pimephales promelas*) are to be used for testing for the No Observed Effect Concentration (NOEC).

Midpoint Check Stat.exe Evaluation:

As stated previously, the midpoint of the chronic dilution series is $TU_c = 2.63$. This was evaluated using Stat.exe to determine if limits would be inappropriately triggered (Table 5). Since no limit was triggered by the midpoint, the recommended dilution series can be used without the need for adjustment. The midpoint of 38% is equivalent to a TU_c of 2.63.

Acute Stat.exe Data Evaluation:

The summary of the acute toxicity testing data in Table 1 shows that the No Observed Adverse Effects Concentration (NOAEC) was 100% in every test for both species except for one test for *C. dubia* in May of 2011, where percent survival was 40% in pure effluent, and the NOAEC was 50%. Normally, when the WLA_a is <1, any acute test result less than 100% causes a limit of 100% to be included. However, in this case the annual monitoring has been continued without a limit. The reason for this is the conflicting results of the chronic test performed simultaneously with the acute test in question. The chronic test showed no observed effects of the effluent on *C. dubia* in either reproduction or survival, with 100 percent survival in pure effluent. The acute test was conducted with effluent from the second of the three samples used in the chronic test.

Peer Reviewer: BWC

Date: 11.5.15

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Table 1
Summary of Acute Toxicity Testing (NOAEC)

Monitoring Period	Test Date	48-Hr. Static Acute <i>Ceriodaphnia dubia</i> %	48-Hr Static Acute <i>Pimephales promelas</i> %
1 st Quarter	11.17.10	100	100
2 nd Quarter	02.16.11	100	100
3 rd Quarter	05.25.11	50	100
4 th Quarter	08.03.11	100	100
1 st Annual	06.26.12	100	100
2 nd Annual	06.05.13	100	100
3 rd Annual	06.01.14	100	100
4 th Annual	06.24.15	100	100

Table 2
Summary of Chronic Toxicity Testing for *Ceriodaphnia dubia*

Monitoring Period	Test Date	Chronic 3-Brood Static Renewal Survival and Reproduction <i>Ceriodaphnia dubia</i>		48-hr LC ₅₀
		Survival (TUc)	Reproduction (TUc)	
1 st Quarter	11.17.10	1.0	1.0	>100
2 nd Quarter	02.15.11	1.0	1.0	>100
3 rd Quarter	05.24.11	1.0	1.0	>100
4 th Quarter	08.02.11	1.0	1.0	>100
1 st Annual	06.26.12	1.0	1.0	>100
2 nd Annual	06.02.13	1.0	1.0	>100
3 rd Annual	06.07.14	1.0	1.0	>100
4 th Annual	06.24.15	1.0	1.0	>100

Table 3
Summary of Chronic Toxicity Testing for *Pimephales promelas*

Monitoring Period	Test Date	Chronic 7- Day Static Renewal Survival and Growth <i>Pimephales promelas</i>		48-hr LC ₅₀
		Survival (TUc)	Growth (TUc)	
1 st Quarter	11.17.10	1.0	1.0	>100
2 nd Quarter	02.15.11	1.0	1.0	>100
3 rd Quarter	05.24.11	1.0	1.62	>100
4 th Quarter	08.02.11	1.0	1.0	>100
1 st Annual	06.26.12	1.0	1.0	>100
2 nd Annual	06.02.13	1.0	1.0	>100
3 rd Annual	06.07.14	1.0	1.0	>100
4 th Annual	06.24.15	1.0	1.0	>100

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Table 4
WETLim10.xls Spreadsheet

Spreadsheet for determination of WET test endpoints or WET limits									
Excel 97		Acute Endpoint/Permit Limit		Use as LC ₅₀ in Special Condition, as TU _a on DMR					
Revision Date: 12/13/13		ACUTE 100% = NOAEC		LC ₅₀ = NA % Use as NA TU _a					
File: WETLim10.xls		ACUTE WLA _a 0.656883		Note: Inform the permittee that if the mean of the data exceeds this TU _a : 1.0 a limit may result using STATS.EXE					
(MIX.EXE required also)									
		Chronic Endpoint/Permit Limit		Use as NOEC in Special Condition, as TU _c on DMR					
		CHRONIC 6.56883016 TU _c		NOEC = 16 % Use as 6.25 TU _c					
		BOTH* 6.56883016 TU _c		NOEC = 16 % Use as 6.25 TU _c					
		AML 6.56883016 TU _c		NOEC = 16 % Use as 6.25 TU _c					
Enter data in the cells with blue type:									
Entry Date:	11/02/15	ACUTE WLA _{a,c} 6.56883		Note: Inform the permittee that if the mean of the data exceeds this TUC: 2.6994257					
Facility Name:	Woodstock STP	CHRONIC WLA _c 21.8		a limit may result using STATS.EXE					
VPDES Number:	VA0026468	* Both means acute expressed as chronic							
Outfall Number:	001								
		% Flow to be used from MIX.EXE		Diffuser /modeling study?					
Plant Flow:	2 MGD			Enter Y/N n					
Acute 1Q10:	35.3 MGD	6.74 %		Acute 1 :1					
Chronic 7Q10:	41.6 MGD	100 %		Chronic 1 :1					
Are data available to calculate CV? (Y/N)		N		(Minimum of 10 data points, same species, needed)				Go to Page 2	
Are data available to calculate ACR? (Y/N)		N		(NOEC<LC50, do not use greater/less than data)				Go to Page 3	
IWC _a	45.67023351 %	Plant flow/plant flow + 1Q10		NOTE: If the IWC _a is >33%, specify the NOAEC = 100% test/endpoint for use					
IWC _c	4.587155963 %	Plant flow/plant flow + 7Q10							
Dilution, acute	2.18961	100/IWC _a							
Dilution, chronic	21.8	100/IWC _c							
WLA _a	0.656883	Instream criterion (0.3 TU _a) X's Dilution, acute							
WLA _c	21.8	Instream criterion (1.0 TU _c) X's Dilution, chronic							
WLA _{a,c}	6.56883	ACR X's WLA _a - converts acute WLA to chronic units							
ACR -acute/chronic ratio	10	LC50/NOEC (Default is 10 - if data are available, use tables Page 3)							
CV-Coefficient of variation	0.6	Default of 0.6 - if data are available, use tables Page 2)							
Constants eA	0.4109447	Default = 0.41							
eB	0.6010373	Default = 0.60							
eC	2.4334175	Default = 2.43							
eD	2.4334175	Default = 2.43 (1 samp) No. of sample 1							
**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTA _{a,c} and MDL using it are driven by the ACR.									
LTA _{a,c}	2.699425874	WLA _{a,c} X's eA							
LTA _c	13.10261314	WLA _c X's eB							
MDL** with LTA _{a,c}	6.568830161	TU _c NOEC = 15.223411		(Protects from acute/chronic toxicity)		Rounded NOEC's		%	
MDL** with LTA _c	31.88412811	TU _c NOEC = 3.136357		(Protects from chronic toxicity)		NOEC = 16		%	
AML with lowest LTA	6.568830161	TU _c NOEC = 15.223411		Lowest LTA X's eD		NOEC = 4		%	
IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU _c to TU _a									
MDL with LTA _{a,c}	0.656883016	TU _a LC50 = 152.234108		Use NOAEC=100%		Rounded LC50's		%	
MDL with LTA _c	3.188412811	TU _a LC50 = 31.363567				LC50 = NA		%	

CHRONIC DILUTION SERIES TO RECOMMEND					
		Monitoring		Limit	
		% Effluent	TU _c	% Effluent	TU _c
Dilution series based on data mean		38	2.6994257		
Dilution series to use for limit				16	6.25
Dilution factor to recommend:		0.6164414		0.4	
Dilution series to recommend:		100.0	1.00	100.0	1.00
		61.6	1.62	40.0	2.50
		38.0	2.63	16.0	6.25
		23.4	4.27	6.4	15.63
		14.4	6.93	2.6	39.06
Extra dilutions if needed		8.90	11.23	1.02	97.66
		5.49	18.22	0.41	244.14

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**Table 5
Stat.exe Results**

<p><u>Chemical = Wet Chronic Cd:</u> Chronic averaging period = 4 WLAa,c = 6.56883 WLAc = 21.8 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 8 Expected Value = 1 Variance = .36 C.V. = 0.6 97th percentile daily values = 2.43341 97th percentile 4 day average = 1.66379 97th percentile 30 day average= 1.20605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1,1,1,1,1,1,1</p>	<p><u>Chemical = Wet Chronic Pp:</u> Chronic averaging period = 4 WLAa,c = 6.56883 WLAc = 21.8 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 8 Expected Value = 1.0775 Variance = .417962 C.V. = 0.6 97th percentile daily values = 2.62200 97th percentile 4 day average = 1.79273 97th percentile 30 day average= 1.29952 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1,1,1.62,1,1,1,1</p>
<p><u>Chemical = Midpoint Check:</u> Chronic averaging period = 4 WLAa,c = 6.56883 WLAc = 21.8 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 2.63 Variance = 2.49008 C.V. = 0.6 97th percentile daily values = 6.39988 97th percentile 4 day average = 4.37576 97th percentile 30 day average= 3.17191 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 2.63</p>	

APPENDIX C

BASES FOR PERMIT SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page	<ul style="list-style-type: none"> Content and format as prescribed by the Guidance Memo No. 14-2003.
Part I.A.	<p>Effluent Limitations and Monitoring Requirements: Bases for effluent limits are provided in previous pages of this fact sheet. Monitoring requirements are as prescribed by Guidance Memo No. 14-2003.</p> <p><i>Updates Part I.A.1 of the previous permit with the following:</i></p> <ul style="list-style-type: none"> The monitoring frequency for E. coli has been expressed as 4/Month instead of 1/Week. A reduced monitoring frequency footnote has been added. A Total Nitrogen footnote has been added. The footnote requiring at least 85% removal of TSS has been revised. Footnotes defining 2/Month and 4/Month monitoring have been added.
Part I.B.	<p>Total Residual Chlorine (TRC) and E. coli Limitations and Monitoring Requirements: <i>Updates Part I.B of the previous permit with minor wording changes.</i> Specifies both disinfection and effluent limits and monitoring requirements should the permittee elect to switch from alternate disinfection to chlorine disinfection. Required by Sewage Collection and Treatment (SCAT) Regulations and 9VAC25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.</p>
Part I.C	<p>Effluent Limitations and Monitoring Requirements – Additional Instructions: <i>Updates Part I.C of the previous permit with minor wording changes. Also, the QL for CBOD₅ was changed from 5 mg/L to 2 mg/L, and the QL for TKN has been added.</i></p> <p>Authorized by VPDES Permit Regulation 9 VAC25-31-190 J.4 and 220.I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.</p> <p>§62.1 44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, this special condition is intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.</p>
Part I.D	<p>Pretreatment Program Requirements: <i>Updates Part I.D of the previous permit with minor wording changes.</i> VPDES Permit Regulation 9VAC25-31-730 through 900, and 40 CFR part 403 require certain existing and new sources of pollution to meet specified regulations.</p>
Part I.E	<p>Whole Effluent Toxicity (WET) Requirements: <i>Updates Part I.E of the previous permit with minor wording and schedule changes.</i> VPDES Permit Regulation 9VAC25-31-210 and 220.I, requires monitoring in the permit to assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. Monitoring requirements are as prescribed by Guidance Memo No. 00-2012.</p>
Part I.F.1	<p>95% Capacity Reopener: <i>Updates Part I.F.1 of the previous permit with minor wording changes.</i> Required by VPDES Permit Regulation 9VAC25-31-200 B 4 for Publicly Owned Treatment Works (POTW) and Privately Owned Treatment Works (PVOTW) permits.</p>

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Part I.F.2	Indirect Dischargers: <i>Updates Part I.F.2 of the previous permit.</i> Required by VPDES Permit Regulation 9VAC25-31-200.B.1 and B.2 for Publicly Owned Treatment Works (POTW) and Privately Owned Treatment Works (PVOTW) that receive waste from someone other than the owner of the treatment works.
Part I.F.3	Materials Handling/Storage: <i>Identical to Part I.F.3 of the previous permit.</i> 9VAC25-31-50.A prohibits the discharge of any waste into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.
Part I.F.4	O&M Manual Requirement: <i>Updates Part I.F.4 of the previous permit with changes to what is required to be included in the O&M Manual.</i> Required by Code of Virginia Section 62.1-44.19, Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.
Part I.F.5	CTC/CTO Requirement: <i>Identical to Part I.F.5 of the previous permit.</i> Required by Code of Virginia 62.1-44.19, Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.
Part I.F.6	SMP Requirement: <i>Updates Part I.F.6 of the previous permit with minor wording changes.</i> VPDES Permit Regulation 9VAC25-31-100.Q, 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9VAC25-32-10 <i>et seq.</i>)
Part I.F.7	Licensed Operator Requirement: <i>Updates Part I.F.7 of the previous permit with minor wording changes.</i> The VPDES Permit Regulation 9VAC25-31-200.C, the Code of Virginia 54.1-2300 <i>et seq.</i> , and Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 <i>et seq.</i>), require licensure of operators. A class II license is indicated for this facility.
Part I.F.8	Reliability Class: <i>Identical to Part I.F.8 of the previous permit.</i> Required by Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790 for all municipal facilities.
Part I.F.9	Water Quality Criteria Monitoring: <i>Updates Part I.F.9 of the previous permit with different parameters required to be monitored in Attachment A.</i> State Water Control Law Section 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, Subpart 131.11. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit.
Part I.F.10	Treatment Works Closure Plan. <i>Updates Part I.F.10 of the previous permit with minor wording changes.</i> This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure industrial sites and treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law.

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Part I.F.11	<p>Reopeners: <i>Updates Part I.F.11 of the previous permit with minor wording changes.</i></p> <p>a. Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.</p> <p>b. 9VAC25-40-70.A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.</p> <p>c. 9VAC25-31-390.A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.</p> <p>d. Required by the VPDES Permit Regulation 9VAC25-31-220.C, for all permits issued to treatment works treating domestic sewage.</p>
Part I.F.12	<p>Suspension of concentration limits for E3/E4 facilities: <i>New Requirement.</i> 9VAC25-40-70.B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.</p>
Part I.F.13	<p>Effluent Monitoring Frequencies: <i>New Requirement.</i> In accordance with Guidance Memo No. 14-2003, a reduction in monitoring frequency has been granted based on a history of permit compliance. To remain eligible for the reduction, the permittee should not have violations related to the effluent limits for which reduced frequencies were granted. If the permittee fails to maintain the previous level of performance, the baseline monitoring frequencies should be reinstated for those parameters that were previously granted a monitoring frequency reduction.</p>
Part I.F.14	<p><i>New Requirement.</i> Allows for the temporary use of treated effluent as on-site fire suppression.</p>
Part II	<p>Conditions Applicable to All VPDES Permits: <i>Updates Part II of the previous permit.</i> VPDES Permit Regulation 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.</p>